65380

VOL. IV.

TRANSCRIPT OF RECORD.

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1908.

No. 396.

WILLIAM R. WILLCOX ET AL., CONSTITUTING THE PUBLIC SERVICE COMMISSION OF THE STATE OF NEW YORK FOR THE FIRST DISTRICT, APPELLANTS,

vs.

CONSOLIDATED GAS COMPANY OF NEW YORK.

No. 397.

THE CITY OF NEW YORK, APPELLANT,

vs.

CONSOLIDATED GAS COMPANY OF NEW YORK.

No. 398.

WILLIAM S. JACKSON, AS ATTORNEY GENERAL OF THE STATE OF NEW YORK, APPELLANT,

vs.

CONSOLIDATED GAS COMPANY OF NEW YORK.

APPEALS FROM THE CIRCUIT COURT OF THE UNITED STATES FOR THE SOUTHERN DISTRICT OF NEW YORK.

FILED MAY 16, 1908.

(21,176, 21,177, 21,178.)

VOL. IV.

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1908.

No. 396.

WILLIAM R. WILLCOX ET AL., CONSTITUTING THE PUBLIC SERVICE COMMISSION OF THE STATE OF NEW YORK FOR THE FIRST DISTRICT, APPELLANTS,

vs.

CONSOLIDATED GAS COMPANY OF NEW YORK.

No. 397.

THE CITY OF NEW YORK, APPELLANT,

vs.

CONSOLIDATED GAS COMPANY OF NEW YORK.

No. 398.

WILLIAM S. JACKSON, AS ATTORNEY GENERAL OF THE STATE OF NEW YORK, APPELLANT,

vs.

CONSOLIDATED GAS COMPANY OF NEW YORK.

APPEALS FROM THE CIRCUIT COURT OF THE UNITED STATES FOR THE SOUTHERN DISTRICT OF NEW YORK.

INDEX.

	Original.	Print.
Evidence before the master—Continued:		
Evidence for defendants—		
Testimony of Edwin Craven Midgley	4539	3280
Michael Gilmore	4549	3287
William D. Marks (recalled)	4553	3290
Henry H. Edgerton (resumed)	4619	3331
Marvyn Scudder	4760	3418

	Original.	Print.
Testimony of William D. Marks (recalled)	4766	3422
Robert L. Waters	4771	3425
Gustavus T. Kirby	4788	3434
James D. Boyd	4790	3436
Delevan Emory	4792	3437
Lewis Emery, Jr.	4813	3452
Henry H. Edgerton (resumed)	4827	3461
Henry Clapp Sherman	4940	3532
Offers of exhibits, &c.	4952	3539
Referee's report in case of People *vs.* Union Gas Light Co.	4954	3540
Offers of statutes, &c.	4970	3549
Memorandum of Judge Lacombe, &c.	4982	3555
Testimony of Albert E. Winchester	4986	3557
Arthur De Forest Cowperthwaite	4991	3560
George Ely Cowperthwaite	4993	3562
Henry H. Edgerton (recalled)	5002	3568
Albert G. Stillwell	5003	3568
Henry C. Hazzard	5012	3574
State's Exhibit LLL—Excerpts from reports of gas companies for year ending June 30, 1906	5014*a*	3575
Testimony of Henry H. Edgerton (resumed)	5018	3578
Testimony of William D. Marks (resumed)	5054	3601
Itemized schedules showing valuations, &c.	5063	3606
Testimony of Henry H. Edgerton (recalled)	5116	3640
Schedules of the various plants	5119	3642
Testimony of William D. Marks (recalled)	5243	3748
Testimony of Henry H. Edgerton (recalled)	5320	3795
Clerk's certificate to volume VII of testimony	5409	3854
Evidence for complainant in rebuttal	5410	3856
Testimony of Herbert J. Long	5410	3856
Colin C. Simpson (recalled)	5417	3860
William H. Wheelock (recalled)	5603	3986
Datus F. Brown	5656	4019
John M. Brock	5664	4025
John W. McClellan	5675	4032
Wm. H. Childs	5682	4036
Edward H. Wardwell	5699	4048
George W. Doane	5715	4058
Charles G. Franklin	5736	4071
Frederick J. Down	5737	4072
Albert Riblet	5738	4072
Thomas W. Varle	5739	4073
John W. Lieb, Jr.	5761	4088
Alexander Maxwell	5773	4095
John W. Lieb, Jr. (recalled)	5786	4103
Alexander Maxwell (resumed)	5802	4113
Albert F. Ganz	5826	4128
Alexander Maxwell (recalled)	5889	4168
Colin C. Simpson (recalled)	5894	4071
Oscar H. Fogg	5899	4174
Walter R. Addicks (recalled)	5924	4191
Alfred E. Forstall	6155	4335

	Original.	Print.
Clerk's certificate to volume VIII of testimony	6175	4348
Testimony of Alfred E. Forstall (resumed)	6176	4349
Testimony of Oscar H. Fogg (recalled)	6204	4366
Offers of exhibits, &c.	6293	4424
Testimony of Robert A. Carter (recalled)	6294	4424
Frederick J. Mayer (recalled)	6564	4584
Alexander C. Humphreys (recalled)	6739	4690
Exhibit 1 A—Memorandum in regard to the reductions in price of gas, &c.	6795	4724
Testimony of Clark Bell	6928	4802
Alfred E. Forstall (recalled)	6936	4807
Walter R. Addicks (recalled)	6940	4809
Motion to dismiss, &c.	6952	4815
Testimony closed	6956	4818
Clerk's certificate to volume IX of testimony	6957	4818

4537 Circuit Court of the United States, Southern District of New York.

CONSOLIDATED GAS COMPANY OF NEW YORK, Complainant,
vs.
JULIUS M. MAYER, as Attorney General of the State of New York; WILLIAM TRAVERS JEROME, as District Attorney of New York County; FREDERICK E. GUNNISON, JOHN C. DAVIES, and LUCIEN L. SHEDDEN, Constituting the New York State Commission of Gas and Electricity, and THE CITY OF NEW YORK, Defendants.

Before Arthur H. Masten, Special Master.

NEW YORK, *December 5th*, 1906.

Met pursuant to adjournment.
Present: The Master, Mr. Mathewson, Mr. Page, Mr. Burr.

U. S. Circuit Court, Southern District, N. Y. Filed June 24, 1907. John A. Shields, Clerk.

4538 Mr. MATHEWSON: A request was made yesterday by one of the counsel for the defendants for leave to sample the oil which the company is using. I saw no objection to it personally, except that it seems to me to be immaterial, but I felt that it was a little outside of counsel's province and I desired to consult the officers of the company. I have to say this morning that, subject to the objection that it is immaterial, we have no objection to its being done. But in order that no question shall arise, I would like to have it understood that the sample shall be drawn in the presence of a representative of the defendants; that the sample which is drawn shall be equally divided between the defendants and ourselves; and that the defendants shall indicate the plant at which they want the sample drawn, and they can draw the sample at any plant they please to designate from the oil just as it is being fed to the machines, so that there can be no doubt about it. Is that a fair suggestion?

Mr. KIRBY: That seems to be fair, and it is quite satisfactory to the counsel for the defendants, who made the request, and to the defendant.

Mr. MATHEWSON: I should say this, that during this cold weather for some time we have been using, as I understand, nothing but the 34-degree or above oil, and I do not think we have any 28-degree oil at all from which samples can be drawn. That is something that we have no control over, but that, I understand, is the situation.

Mr. KIRBY: I presume, however, that such oil could be obtained at Bayonne.

Mr. MATHEWSON: I do not know, but we are talking about the oil delivered to us under the contract.

Mr. KIRBY: I mean designated by you as such as would be delivered under the contract.

Mr. MATHEWSON: I don't know about that, no. I would
4539 not like to say that, because I don't know. The question was whether we are receiving the oil as prescribed under the contract, and I do not see how that can be tested except by testing the oil which we are receiving, because I may say that all the oil as the company receives it, every tank, is tested by the company.

Mr. KIRBY: I believe that is so from your books that we have had the opportunity to see.

Mr. MATHEWSON: And you can see by drawing oil at Bayonne, if you found oil of less gravity than we require we would simply say that if it had been tendered to us we would have rejected it.

Mr. KIRBY: Very good. Then shall I arrange with Mr. Addicks or Mr. Bradley about it?

Mr. MATHEWSON: Yes, you had better telephone Mr. Addicks, as he is the officer with whom I spoke.

Mr. KIRBY: I shall make the arrangement with him as soon as I am through with these two witnesses, who will only take a very few moments.

EDWIN CRAVEN MIDGLEY, called as a witness for the defendant, the State of New York, being duly sworn, testified as follows:

Direct examination by Mr. KIRBY:

Q. Mr. Midgley, on the days of November 28th and November 30th, did you, with one Michael Gilmore, who, I believe, is sitting at your right here, make an inspection of certain openings in the street in the Island of Manhattan for the purpose of accertaining how far below the surface of the street were such gas pipes as you observed in such openings?

A. Yes, sir.

Q. And did you observe any of such pipes to be 24 inches
4540 or less below the surface of the street?

A. Yes.

Q. Did you make a list of such pipes?

A. I did.

Q. Is the schedule which I show you (handing paper) one giving the location, the size of such main, and the depth of such main below the surface of the street?

A. It did.

Q. Will you state the results shown upon such list?

Mr. MATHEWSON: Let me see it; it is not necessary to have him repeat it.

Mr. KIRBY: I want it to go in in connection with his testimony.

The WITNESS: I found fourteen places in which the gas mains were two feet or less below the surface; there are thirteen in this list and the one which I found yesterday.

Exhibit A.

List of Some Gas Mains Which Are Laid Two Feet or Less Below the Paving Surface.

Location of gas mains.	Size of main.	Depth below surface of street.
S. E. cor. 7th Ave. and 135th St.....	16 inches.	20 inches.
N. E. cor. Broadway and 112th St.....	6 "	24 "
S. E. cor. Park Ave. and 60th St.....	10 "	23 "
N. W. cor. 2d Ave. and 60th St.....	4 "	22 "
S. W. cor. 2d Ave. and 62d St.....	6 "	20 "
S. W. cor. 2d Ave. and 62d St.....	6 "	18 "
S. W. cor. 13th St. and 6th Ave.....	12 "	12 "
N. W. cor. 1st Ave. and 40th St.....	6 "	20 "
N. W. cor. 6th Ave. and 14th St.....	6 "	23 "
S. E. cor. 6th Ave. and 11th St.....	16 "	15 "
Whitehall and Water Sts.....	6 "	15 "
S. W. cor. 8th Ave. and 35th St.....	12 "	15 "
N. W. cor. Fulton and Pearl Sts.....	.....	11 "

Q. Where is the one which you just spoke of, which is not upon this list?

4541 A. That is at the northwest corner of Tenth Avenue and 42d Street—no, it is the southeast corner of Tenth Avenue and 42d Street.

Q. What was the size of that main?

A. There are two mains there, one 12-inch main, 16 inches deep, and one 6-inch main, 22 inches deep.

Q. Did you find any mains besides those which were slightly above two feet in depth below the surface of the street?

A. I found three others at a depth of two feet—between two feet and two feet four.

Q. Are they indicated on this schedule I hand you (handing paper)?

A. They are.

Mr. Mathewson: How deep?

The Witness: Between two feet and—well, the deepest was two feet four inches.

Exhibit B.

List of Some Gas Mains Which Are Laid Between Two Feet and Two Feet Six Inches Below the Paving Surface.

Location of gas mains.	Size of main.	Depth below surface of street.
N. W. cor. Broadway and 119th St.....	6 inches.	2 ft. 2 in.
Clairmont Ave. and 119th St.....	6 "	2 ft. 4 in.
N. W. cor. 40th St. and 1st Ave.....	20 "	2 ft. 2 in.

Q. Now, Mr. Midgley, in making this inspection, or in such instances as you did not, did Mr. Gilmore make these measurements?
A. In every case.
Q. How did you make the measurements?
A. We obtained a plank or straight edge of some kind and placed it across the trench and used a rule to measure the depth from the top of the main to the under edge of the plank, the straight edge which would be level with the pavement.
Q. Did you observe other pipes in the street at the time
4542 you made these inspections?
A. Yes, we visited a great many of them and in most cases we observed pipes of one sort or another.
Q. And in all instances you did not observe gas pipes?
A. Not in all instances, no.
Q. And how did you ascertain which were gas pipes or mains and which were not?
A. I relied chiefly on Mr. Gilmore's knowledge of the mains, and with that, and by a process of elimination of any other mains, we arrived at the gas mains.
Q. What do you mean by process of elimination?
A. We would find the position of the water mains.
Q. How would you find that position?
A. By the manholes; the covers were lettered along the street.
Q. Lettered in what way?
A. D. P. W. or Croton Water.
Q. Having found the water main, what would you eliminate?
A. The subways and salt water mains which are being put in on certain streets and the steam pipes.

Cross-examination by Mr. MATHEWSON:

Q. One of these pipes which was laid at a depth of 24 inches or less from the surface, according to your schedule, was at the corner of Whitehall and Water Streets, wasn't it?
A. Yes.
Q. Now, is it not true that every instance of these thirteen which was only 24 inches or less in depth was at the corner of the street?
A. Certainly, practically every opening we examined was at the corner of a street.
Q. Well, every one on this schedule was at the corner of a street?
A. Yes.
Q. How many openings altogether did you examine in the streets?
A. I did not count them, but I went to a good many.
Q. And these are all the measurements that you took,
4543 shown in these two schedules?
A. I took only measurements—I regarded the measurements of such as were less than 2 feet 6 inches below the surface. I was not interested in any others.
Q. No. You found a great many more that were more than 2 feet 6 inches below the surface, didn't you?
A. A good many.
Q. At the corners of the street also?

A. At the corners of the streets?
Q. As well as in the streets and not at corners?
A. There were very few openings in the streets which were not at corners, which disclosed gas pipes. They were mostly too far out from the curb.
Q. Were not the surfaces of the streets where these occurred curved, that is, convexed upward?
A. Very slightly, I presume; there is a curve on every street.
Q. Did you take a measurement from the curb to these various pipes?
A. In all cases.
Q. Have you such measurements?
A. I have (producing paper).

Mr. KIRBY: Just read it.
Mr. MATHEWSON: No, I do not think it worth while to read it yet.

Q. I suppose this relates to these schedules?
A. Yes, in every case I took a measurement.
Q. Do you know whose gas pipes these were, whether of the Consolidated Gas Company or other companies?
A. I was informed in some cases that certain mains were the Consolidated Gas Company's or the Standard's.
Q. Who informed you?
A. Mr. Gilmore.
Q. Did you measure to the top of the pipe in each case?
A. Yes.
Q. The top of the pipe at the highest point of the pipe?
4544 A. Well, as far as could be judged by the eye, it was at the highest point.
Q. Was it down to the run of the pipe or was the measurement to the top of the pipe where it is nearest the surface, including the flanges or fixtures?
A. Do you mean the bells?
Q. Yes.
A. No, we never took a measurement to the top of the bell; it was always to the straight run of the pipe.
Q. You found that the pipe was nearer the surface at some one point where you made the measurements than it was at some other point, didn't you?
A. No, we did not——
Q. You merely took what appeared to be the highest point to the eye, as you say, and made your measurements that way?
A. No, the place we took the measurement in nearly every case was the best place to take a photograph, at one end of the trench, and the best place to see the street surface.
Q. Are these openings still existing?
A. I could not say.
Q. Have you any objection to pointing out to our representative the particular pipes shown in these schedules?
A. I have no objection whatever.

Mr. MATHEWSON: Assuming that they cannot be identified by us otherwise, Mr. Kirby, you have no objection, I presume?

Mr. KIRBY: Absolutely none.

Q. Now, can you give me any estimate of the number of measurements which you made and which you did not include on these two schedules?

A. On a very rough guess I should say about as many again, perhaps slightly more; but not very many more.

Q. What is your business?

A. I am employed in the office of Kirby & Wood; I am employed in Mr. Kirby's office.

4545 Redirect examination by Mr. KIRBY:

Q. Are you a graduate of any university or school?

A. Cambridge University.

Q. What course did you take while there?

A. Engineering, special and general.

By Mr. MATHEWSON:

Q. Did you measure the width of these trenches at the top?

A. In a few cases, but as the gas main in most cases ran across the trench and not along it, with either a trench for a subway or the salt water system, I did not take very many of such measurements.

Mr. KIRBY: I will give Mr. Mathewson more information along that line——

Mr. MATHEWSON: Is there any objection to me having a copy of the location of these pipes which the witness says he has, and hasn't spread on the record?

Mr. KIRBY: I am going to put in evidence the schedule, which will give all this detailed information, and which will save the trouble of Mr. Midgley going around, or anybody else.

By Mr. KIRBY:

Q. Have you prepared a schedule showing the result of your and Mr. Gilmore's inspection of these mains, giving the distance from the curb, such observations as you made as to whether or not the mains were those of the Consolidated Gas Company, and Mr. Gilmore's and your own conclusions as to whether or not you were absolutely sure that the mains examined were or were not the Consolidated Gas Company mains?

A. I have.

Q. Is this schedule which I show you the result of your inspection in that regard?

A. It is.

4546 Q. Did you find these mains to be in good condition? By that I mean were they under repair at the time you examined them?

A. Well, I do not feel that I am called upon to judge of that. I can only say there was only one or two instances that I smelled any gas.

Q. Were the workmen, as a rule, working upon the gas main which was exposed, or other work?

A. No, in very few instances were they working on the gas mains.

Mr. KIRBY: That may be spread upon the record.

Inspection of Gas Mains, Nov. 28th, 1906.

1. N. W. cor. Broadway and 119
6-inch Main runs under sidewalk 11 feet 2 inches W. of W. Curb line 27 inches deep — Sure
Stop cock cover Con. Gas. Co.
Water Main runs 3 feet E of gas main.

2. Clairmont Ave. and 119 St. Con Gas
28 inches deep 6 inch main — Sure
3 feet 6 inches E. of W. Curb.

3. 7th Ave. and 135 St. S. E. Cor.
6-inch Main Consol. Gas Ribbed 2½ inches by ½ inch. 20 inches deep — Sure
3 feet 6 inches N. of S. curb line
Trench 22 inches wide.

4. N. E. Cor. Broadway and 112 St.
6-inch main, 24 inches deep. Laid under sidewalk. — Sure
7 feet S. of N. curb and 11 feet E. of E. curb.
Valve box on sidewalk.

5. S. W. cor. Broadway and 62 St.
6-inch main under sidewalk — Sure
11 feet W. of W. curb.

4547

6. S. E. cor. Park Ave. and 60th St.
10-inch main 23 inches deep. Wrought Iron (Standard) — Sure
11 feet 4 inches W. of E. curb.

7. N. W. cor. 60th St. and 2nd Ave.
4-inch main 22 in. deep — Sure
2 feet 9 inches S. from N. curb.

8. S. W. cor. 2nd Ave. and 62nd St.
6-inch main 20 inches deep — Sure
4 feet N. of S. curb.

9. Also Elbow curves over other main 18 inches deep — Sure
9 feet E. of W. curb.

10. S. W. cor. 13th and 6th Ave.
12-inch main. In his opinion a gas main but not positive
12 inches deep
10 feet E. of W. curb.

11. Corner of Fulton and Pearl Sts.
Main 11 inches deep
Water main runs down middle of St.

12. N. W. corner 40th St. and 1st Ave.
3 ft. N. of corner 7 feet 4 inches E. of W. curb Sure
6-inch main—Consolidated—Ribbed Spirally
20 inches deep.

13. 20-inch main 1 ft. West of #13
26 inches deep Sure
Water main in these cases 15 feet E. of W. curb.

14. N. W. corner of 6th Ave and 14th St.
6-inch main, 23 inches deep
3 feet 6 inches S. of N. curb
In G.'s opinion a gas main, but not sure, as could not locate water main.

4548

15. S. E. corner 6th Ave. and 11th St.
16-inch main with 4-inch outlet 8 ft. E. of W. curb Sure
15 inches deep
12 in. Salt water main, trench averages 2 ft. wide.

16. Corner of Whitehall and Water St-.
9 feet W. of E. curb Sure
6-inch main 15 inches deep—shows plug
Water main 1 ft. West.

17. S. W. corner 8th Ave. and 35th St.
12-inch main 13 feet E. of W. curb
15 inches deep. Not absolutely sure

By Mr. MATHEWSON:

Q. Were the streets paved in every instance?
A. The greater number were asphalt streets. I think there were one or two up in the far north which were macadamized.
Q. The plank to which you have referred was laid across on top of the pavement whatever it was?
A. It was.

By the MASTER:

Q. For how long a time have you been engaged in this work?
A. I took two days.

By Mr. MATHEWSON:

Q. These are all the measurements for location which you have made, which are shown on this schedule?
A. Yes.

4549 MICHAEL GILMORE, called as a witness in behalf of the defendant, the State of New York, being duly sworn, testified as follows:

Direct examination by Mr. KIRBY:

Q. Mr. Gilmore, at the present time are you in the employ of the Department of Water Supply, Gas and Electricity of the City of New York?

A. Yes, sir.

Q. What position do you there hold?

A. Inspector of lamps and gas.

Q. When did you enter the employ of the City?

A. In 1903, in March; March 4th, I think it was.

Q. Prior to that by whom were you employed?

A. The Consolidated Gas Company.

Q. And as such, what duties did you perform for that company?

A. Fitting serves and stand-pipes and resetting lamp-posts.

Q. To perform such duties it was necessary for you to know a gas main when you saw it, was it not?

A. Yes.

Q. And it was to these gas mains that you made your fittings of the services to the houses or lamp-posts or whatever it might be?

A. Yes.

Q. How long were you employed by the Consolidated Gas Company?

A. 11 years.

Q. Are you the Mr. Gilmore spoken of by Mr. Midgley as having spent the days of November 28th and 30th in measuring the depth of certain gas mains below the surface of the street?

A. Yes.

Q. Will you describe how you went about ascertaining whether or not the pipe, the depth of which you measured, was or was not a gas main?

A. Well, the same as Mr. Midgley stated, the first thing I looked for was to get a line on where the water main was by looking for the manhole cover with the Department of Water *of* Supply on,
4550 and then outside of the subways, all other pipe is considered gas pipe.

Q. When you would find the pipe itself, which by this process of elimination you would consider as being or which ought to be a gas pipe, would you look at the character of the pipe for the purpose of ascertaining whether or not it was a gas main, to your mind?

A. In some cases we did.

Q. And in those cases did you come to the conclusion that where you made the measurements you were positive that it was the gas main?

A. Yes.

Q. Now, there were three instances, were there not, as set down in this schedule, in which you were not positive, but which, in your opinion, you believed to be a gas main?

A. Yes.

Q. And those were the ones set down on this schedule as No. 10, the main at the southwest corner of 13th Street and Sixth Avenue; No. 14, northwest corner of Sixth Avenue and Fourteenth Street, and No. 17, southwest corner of Eighth Avenue and 35th Street?

A. Yes.

Q. In each other instance your were positive it was a gas main?

A. Yes.

Q. And came to such conclusion by reason of your experience and training in such matters and through the manner that you have stated?

A. Yes, sir.

Cross-examination by Mr. MATHEWSON:

Q. The measurement was made down from the plank to the highest point of the plank in each case?

A. Yes, sir.

Q. Who did the measuring, you or Mr. Midgley?

A. Mr. Midgley sometimes and sometimes I made the measurements, between the two of us.

Q. When you made it, what sort of a rule did you have?

A. Two-foot rule—three-foot rule.

4551 Q. Did you have a telescopic rule so you could put it directly against the plant in the middle and pull it down until it struck the main, or vice versa?

A. No, sir; just an ordinary three-foot rule.

Mr. KIRBY: A yardstick?

The WITNESS: A yardstick.

Q. Did you put the rule on the top of the pipe and then note the reading at the bottom of the plank?

A. Yes.

Q. Or did you put the rule in any case up against the bottom of the plank and then conclude where the top of the pipe would come on the rule?

A. No, we put it on top of the pipe and held it up to the stick.

Q. What were your duties while you were with the Consolidated Gas Company?

A. Refitting of new lamps and refitting of new services and standpipes to the lamps.

Q. You were not connected with the mains department, the laying of mains?

A. No.

Q. How do you know a gas pipe from any other pipe in the street, from any other pipe of the same size and material?

A. Well, generally, the water main is laid in the center of the street and it has "Department of Water Supply" on it or "Croton Water"; all other mains near the curb are considered gas mains.

Q. And that was the rule you proceeded on in determining these were gas pipes?

A. In some cases.

Q. Was that not the case in most cases?

A. No.

Q. How else would you know?
A. By the spiral running around a 6-inch main, which indicates the Consolidated Gas Company mains.
Q. A spiral?
A. A mark running around a 6-inch main.
4552 Q. That indicates a Consolidated main?
A. Yes, sir.
Q. Where did you learn that?
A. In my business, in the gas business.
Q. With the Consolidated Gas Company?
A. Yes.
Q. And when in this schedule, which has been spread upon the record, I find the word "sure," that means, if I understand you correctly, that you felt very sure those were gas mains?
A. Those were gas mains, yes, sir.
Q. Is it your contention that no other company but the Consolidated used these spirals in indicating its pipes?
A. Yes, sir, that is running around.
Q. That is your understanding?
A. Yes, sir.
Q. When you were with the Consolidated Gas Company, how did you know the pipes of the Consolidated for the purpose of connecting them up where they came within your province? Were they pointed out to you by a foreman?
A. No, sir.
Q. How did you know them?
A. I did know them.
Q. You did not?
A. I did know them.
Q. Do you mean to say you know the mains of the Consolidated from the mains of any other company when they are exposed?
A. When they are exposed.
Q. When you went to make your connections while you were with the Consolidated Company, how did you know that the mains were the Consolidated Gas Company's mains?
A. On the north side of street, three feet or four feet from the curb, is the Consolidated; on the south side of the street, three or four feet from the curb, is the New Amsterdam; outside of that, or wrought iron pipe, is the Standard.
Q. You mean to say that is universal?
A. That is universal.
4553 Q. All through the city?
A. Pretty nearly all through the city.
Q. And that was the way you determined which were the mains of the Consolidated in making connections?
A. Yes, sir.

By Mr. KIRBY:

Q. You spoke of measuring the distance from the highest point of the main to the surface of the street. Do you mean by that that you measured from the top of the bell?

A. We measured from the top of the pipe where you tap. We put a rule on the center like this here (indicating); we put it on the top of this right here and then we hold the stick over the pavement and get the level.

Q. But you would not measure where two pipes join or come together, and where there was an edge or bell?

A. Do you mean at the hub?

Q. Yes.

A. No, sir.

WILLIAM D. MARKS, recalled on behalf of the City:

Direct examination by Mr. BURR:

Q. Since your last appearance here as a witness I believe you have been acting as one of the Advisory Engineers to the accountants engaged in making an examination of the books of the Consolidated Gas Company?

A. I have.

Q. And you have also made an examination of the plants of the company, or some of them?

A. With Mr. Lacombe I examined the meter shop and also one of the fitting or jobbing shops.

Q. For what purpose?

A. As a member of the Advisory Commission, being taken
4554 to these two shops by Vice-President Addicks for the purpose of examining their methods of doing work and keeping account of it at the shops; the meter shop and the jobbing shop.

Q. Was that visit the result of any difficulty which, as a member of the Board of Advisory Engineers acting in connection with the accountants, you experienced?

A. Yes, sir.

Q. And it was for the purpose of verifying those vouchers that that visit was made by both yourself and Mr. Lacombe with President Addicks to these shops?

A. As members of the Advisory Commission we were confronted by a very large number of vouchers which did not go into detail or definitely indicate their use after disappearing into these shops, and it was for the purpose of finding out how this material was handled that we applied directly to Mr. Addicks, Vice-President, and had from him an explanation which was very satisfactory and clear.

Q. That explanation or information you were unable to obtain before that time?

A. We made a number of applications before that, failing to obtain the information, and have particularly charged the accountants—Mr. James Hall in charge—with the question of what became—in fact, we made a record of our query, which is noted in the minutes of the Advisory Commission. I can read that, if you wish.

Q. No, that is all in evidence here. Whatever you did with regard to those disputed or doubtful vouchers, your action appears in the minutes of the Board?

A. It does.

Mr. MATHEWSON: Mr. Master, I do not intend, if I can help it, to waste time in putting in any rebuttal evidence. The Master knows very well, I think, from what has appeared here that we offered long ago to permit an inspection of any apparatus, if the vouchers
4555 were pointed out which were in doubt, and we were not given a list of the vouchers. I do not like to have the witness appear and say he never had any opportunity——

Mr. BURR: I do not like to have statement appear on the record, because it is not true. The vouchers were spread out for your examination.

The MASTER: Do not let us have any further argument on this subject.

Mr. MATHEWSON: I do not care anything about your statement that my remark is a misstatement. I did tell the truth, and you can say anything you please. It does not worry me at all.

Mr. BURR: I can return the compliment.

Q. Is it or is it not a fact that these various vouchers which were recognized as disputed or doubtful by the accountants and by your Board of Advisory Engineers were laid aside for the inspection of the officers of the Consolidated Gas Company, and their attention specifically called to those vouchers?

A. They were. I saw them on either Mr. Addicks' or Mr. Carter's table the day on which Mr. Lacombe and myself went for the purpose of seeing Mr. Addicks directly.

Q. Was their attention called to the specific vouchers in writing or orally, if you recall?

A. Mr. Hall was instructed in writing to place these vouchers, and a list of them, I think, although—no, no list, but simply to select these vouchers as mentioned and place them before the officials of the Consolidated Gas Company.

Q. Now, in addition to that occupation since your last ap-
4556 pearance here have you also been engaged in making an examination of the maps of mains?

A. I have.

Q. Those maps of mains number how many volumes?

A. The maps of mains shown by the Consolidated Gas Company number twelve volumes, of which Mr. Simpson said that two volumes——

Q. I only want to know how many volumes there were, how many maps in each volume, so that the Master can get an idea of the magnitude of the task you undertook to accomplish?

A. (Continuing:) Of which Mr. Simpson said that two, volumes 9 and 10, devoted to The Bronx, had very little in them, and would not interest us. We accepted his statement and figured on those volumes. Of these twelve volumes there were about three hundred and ten maps, each mapping a certain portion of the Island of Manhattan.

Q. And do you recall the testimony in this case that there were mains belonging to the Consolidated Gas Company in every street in the City of New York?

A. I do.

Q. So that you have practically made an examination of the mains of every street in the City of New York, so far as they are shown by the maps of the company? I mean on the Island of Manhattan?

A. On the Island of Manhattan, so far as they are shown by the maps of the company, and measured them.

Q. Have you been engaged in any other work since that time that I speak of, when you last appeared here as a witness? I mean in connection with this case?

A. I have also been engaged in the appraisal of the 14th Street coal gas station of the Consolidated Gas Company.

Q. Have you just finished that appraisal?

A. I have.

Q. That work that you have described as having been en-
4557 gaged on has kept you pretty busy since the time you appeared here as a witness, has it not?

A. With a number of assistants, amounting to about eight, and myself, we have toiled uninterruptedly.

Q. About how many hours a day?

A. I should say an average of fourteen hours a day, working time.

Q. And from your observation of counsel for the city, have you any hesitation in saying he has worked the same number of hours in the same business; that is, in the trial of this case?

A. What is that?

Q. Is it or is it not a fact that counsel worked about the same number of hours preparing for the trial of this case during that time?

A. Counsel has been ever with us.

Mr. MATHEWSON: The counsel has been here a considerable part of the time and you have not, Doctor. I do not see how that can be.

Mr. BURR: The Doctor is speaking of the time I have spent here, the time I spent with him and the time I spent with the other experts in this case. The point is, I want to show there has been no *laches* or neglect on the part of either——

The WITNESS: I referred more particularly to the meetings of Mr. Burr before attending the session in the morning, the meetings at noon, and then in most cases the whole of the evening as well.

Q. Well, you say you have made an examination of the 14th Street plant?

A. I have.

Q. Before proceeding to that subject, Doctor, I want to call your attention to a particular item in the accounts to which your especial attention was called by Mr. Mathewson when you last appeared here. I refer to the charge, depreciation, $282,219.67?

A. Yes.

4558 Q. And you recall the examination of Mr. Mathewson in that regard, do you?

A. I do.

Q. And the inquiry made of you as to the reason for your rejection of the 2.12, contingent per thousand, which Mr. Carter adopted, and the adoption by you of another figure for a lesser amount?

A. I do.

Q. What do you find, as a matter of fact, from the examination of the accounts in the books of the company?

A. I find that the $282,219.67 did not represent an actual expenditure as I had suspected, but that it represented a cross entry to depreciation made by order of the Board of Directors of the Consolidated Gas Company, January 30, 1906. And, further, that this $282,219.67 cross entry, not representing any actual expenditure whatsoever, as I suspected——

Mr. MATHEWSON: Oh, I move to strike that out, "as I suspected." This is virulent from the beginning.

The MASTER: Strike it out.

Mr. BURR: Exception.

The WITNESS (Continuing): Was $60,000 in excess of the proper cross entry, because depreciated mains for 1903 and 1904 were introduced into the depreciation for the year 1905, leaving a balance of about $220,000 charged by cross entry to depreciation, or an average as deduced by the accountants of 1.71 cents per thousand cubic feet of sales.

Q. In other words, you stated to Mr. Mathewson, at that time, your reason for rejecting that amount and adopting the smaller amount, as your testimony appears on page 3686, where you say: "I explained as fully as I was able my reasons for that selection. I do not think I can add anything to it." And you are confirmed in your——

4559 Mr. MATHEWSON: Whether he is confirmed or not appears, doesn't it, from what the fact is? Is there any use in rehearsing his prior testimony?

Q. Do you see any reason to change your testimony in that regard as a result of the examination of the accountant or does it confirm what you previously testified to?

A. It confirms.

Mr. MATHEWSON: Objected to as——

The WITNESS: It confirms my previous testimony.

Mr. MATHEWSON: Wait a minute when I object. I object to it as incompetent, immaterial and irrelevant.

Objection sustained. Exception.

Q. When did you begin to make an examination of the 14th Street plant?

A. During the early part of last week. I cannot fix the date exactly.

Q. How long were you engaged in it?

A. In the actual inspection of the plant, almost all of the week.

Q. And have you since been engaged in tabulating the result of such examination and inspection?

A. I have.

Q. Have you finished the tabulation of the mains this morning, or will you have them ready to-day?

A. I have finished the tabulation of the mains for the Island of Manhattan and The Bronx, as stated in the estimate from Mr. Simpson and the book figures. I have gotten the lengths in feet and miles

of each size, but I have not yet quite completed the computation of the value of these mains. That should be completed within a few hours.

Q. In making this examination of the 14th Street plant, were you assisted by anyone?

4560 A. In examining the 14th Street plant I was assisted by Chief Engineer Lacombe and by Mr. H. H. Edgerton.

Q. What is the total amount of your appraisel of the buildings and apparatus of the 14th Street station?

Mr. MATHEWSON: Has the witness made a schedule of the 14th Street station?

Mr. BURR: Yes, sir.

Q. Regarding the schedule, Doctor, how was that made up? How was the schedule made up?

A. I have not answered the other question. I should like to find the figures, first.

Mr. MATHEWSON: I object to this question on the ground that the witness is incompetent and not proven expert sufficiently enough to testify on that subject.

Mr. BURR: All his qualifications have already been gone into.

Objection overruled. Exception.

A. $1,454,664.00 for the buildings, holders, and manufacturing apparatus of the 14th Street station.

Q. How did you obtain this?

A. From a catalogue furnished by the Consolidated Gas Company, a bill of material or an inventory was drawn off for the use of the three engineers appointed. From the testimony given by Mr. Mayer the values fixed were placed on this bill by a careful reading of the testimony, as Mr. Mayer's inventory as a whole was not put in evidence. This bill of material or inventory was taken and the prices fixed by the gentlemen named, Messrs. Lacombe, H. H. Edgerton, and, so far as the iron work was concerned, by President Logan of the Logan Iron Works. With the exception of myself,

4561 no one member of the Committee of four fixed all the prices or the prices on all the different parts of the works. For the purpose of obtaining a clear comparison of the views of each of the gentlemen named, their values were put down in a tabulated form, giving the value for each item as given by or estimated by each member of the Commission. Then, in addition to this, the inventory by Thomas L. Rowland, 1884, shown in Senate Document 97, was analyzed for the purpose of obtaining his values of such details as were in existence in 1884, and from this comparative tabulation, which is in rather too bulky a form for ordinary use, I drew off a brief statement of the value of the works, making it $1,454,664.

Q. Now will you give us the details?

Mr. MATHEWSON: Do you mean the detailed valuations of the different classes——

Mr. BURR: A summary; the totals.

Mr. MATHEWSON: Mr. Master, I shall have to object to this testi-

mony as to valuation. It is not the testimony of this witness apparently, as to what he believes the present value or the cost of reproduction of these works is; it is evidently conglomerate, made up from various things and considerations and men; and, besides that, he puts in here Mr. Logan's valuations, as he says they are; whereas Mr. Logan himself has been on the stand and testified, and you will remember that Mr. Logan in many instances said that he thought the figures which Mr. Mayer had given as present value less depreciation, were not too high. I then asked him whether the figures which Mr. Mayer gave as the original cost of them were too high, if he considered new value, and he said no, he thought they were right.

4562 I do not know what figures the witness has used here, and I do not think it is of any importance, but, I submit, you cannot prove the value of a plant by any such method of testimony as this. It is utterly impossible to cross-examine this witness as to what was done by Mr. Rowland or what his theory is, or what Mr. Lacombe's theories are.

Mr. BURR: You misunderstood the witness. The witness says that for the sake of convenience he has arranged the schedule. You asked him with regard to a schedule or inventory, and he proceeded to tell you what sort of an inventory he has here before the Master, and he tells you he has arranged the various valuations on the schedule. He is about to testify to his own valuation of the matter, his own consideration of the plant and apparatus.

Mr. MATHEWSON: I move to strike out the witness' testimony that the value is $1,454,664.00, of the 14th Street plant, in view of his statement as to the method in which that was made up.

The MASTER: He has said that he himself had valued all the articles, and he was the only one that did. Now, it is perfectly proper for him to come and testify as to his own valuation on those articles, and that he will be restricted to. Of course, he cannot testify about any average made by comparison of his figures and those of the other members of the so-called Advisory Board. I do not understand that he proposes to do that. If he does that, the objection is sustained.

Mr. BURR: There is no such intention. He is going to state his own valuation of this plant and give his reasons for the valuations.

The MASTER: But the fact that he was sustained or confirmed in any way by any of these others is entirely incompetent and

4563 irrelevant. He dwelt on that at some length, but that does not cut any figure here.

Mr. MATHEWSON: He says the iron work, which is part of this, was valued by Mr. Logan, and not by him.

The MASTER: That was redundant and irrelevant, but let it go, in view of what Mr. Burr says, that he is going to testify to his own valuation.

Q. Will you give us in a little more detail the valuation amounting to $1,454,664.00 which you have placed upon this plant?

Mr. MATHEWSON: Let me see. I would like to ask a question in

advance, whether I understand that the valuation that *you* placed upon this property is $1,454,664.00?

A. It is.

By the MASTER:

Q. And the statement you are about to present is a detailed statement of your own figures, which results in the aggregate to that sum?

A. It is.

By Mr. BURR:

Q. Now, will you proceed?

A. I have visited every building and every piece of apparatus, for which figures are given, at least twice; and have checked the figures given by others and fixed my own at the same time.

Referring to apparatus visible from 1884, although liberal, my valuation of their structural cost is $1,706,294. The retort house——

4564 By Mr. MATHEWSON:

Q. What is that $1,706,294?

A. My valuation of the property in existence in 1884.

Q. Which is still in existence?

A. Yes, still visible and in existence; my valuation of that is $1,706,294. In this I agree with Rowland's valuation. The depreciation on this property is estimated at fifty years, since the retort house and the principal appurtenances to it were built in 1853, according to the testimony of Mr. Mayer.

The depreciation is .85 of 1 per cent., or 42½ per cent., giving $725,175 depreciation, and leaving a balance of $981,119.

There has been added since 1884, my valuation:

(71)	1 stack 24 benches 6s	$50,000	
(72)	4 stoking mach. (Bronder)	16,000	
(73)	1 stocking mach. (Bronder)	4,400	
(74)	1 stoking mach. (De Brower)	10,500	
(76)	1 Ross Drawing Mach	5,000	
(77)	3 Extra engines	700	
(87)	1 Isbell Porter scrubber	7,000	
(88)	1 Hunt Aut. Ry. (coke passage)	8,000	
(90)	2 sixty-ton Coal Hoppers	3,000	
(100)	Exhauster House App. (15th St.)	8,000	
(101)	2 fifty H. P. boilers	3,000	
	Total additions	116,000	
	Depr. 12 yrs. at .85 of 1%, say 10%	11,600	
			$104,400

4565 Yard & Holder pipe connections in 1906	$146,895	
In 1884	82,178	
Increase Value Yard Connections	$64,717	
Depr. 12 yrs. at .85 of 1%, say 10%	6,472	
		58,245
Holder & steel tank, 3,250,000 c. ft.	$225,000	
Foundation for steel tank	50,000	
		275,000
Coal Hopper Bldg.	$7,000	
Exhauster House, 15th St.	19,500	
Boiler House, 15th	3,400	
Boiler House, 15th, new (practically completed)	6,000	
		35,900
No depreciation.		
Total estimated present value of buildings and apparatus		$1,454,664

By Mr. BURR:

Q. You have not been able to make any examination of any other plants of the company for the purpose of placing a valuation on them?

A. I have had no time to do so.

Q. Although you stand perfectly willing and ready to do so?

A. I am.

Q. You have here a schedule, have you not, giving the valuation you have placed upon each piece of apparatus in this plant or station?

A. I have it here.

4566 Mr. BURR: This is all I can ask this witness with regard to the plant. I expect in an hour to have the mass of detail with the amounts tabulated and the results totaled, but I submit I have no more questions to ask him now upon the valuation of the plant, and Mr. Mathewson is at liberty to examine him with regard to that.

Cross-examination by Mr. MATHEWSON:

Q. You remember that it was assented that certain engineers should be permitted to examine the plant of the Consolidated Gas Company for the purpose of estimating their value, that being something like two months ago? You remember that, do you not?

A. I do not.

Mr. BURR: Objected to. I do not know what he desires to show by this.

Mr. MATHEWSON: You have gone into this complaint about not being able to see——

The MASTER: Objection overruled. Proceed.

Mr. PAGE: The objection is, I suppose, that the question assumes a fact that does not exist.

The MASTER: No ground of objection was stated.

Mr. BURR: I object to it as incompetent, irrelevant and immaterial, and because, as the Senator says, it assumes a state of facts which does not exist here.

Objection overruled; exception.

Q. You do not remember that?

A. As far as I remember, I most positively do not.

Q. Do you remember that any arrangement was made several weeks ago that several engineers named by the defendants might examine the plants of the Consolidated Gas Company and
4567 that the Consolidated Gas Company consented to that; do you remember that?

A. I remember——

Q. Do you remember that? That is the question.

A. I don't remember that specifically. I remember visiting the works about——

Q. That is not the question. I asked you whether you remembered that an arrangement was entered into by which certain engineers were permitted by the Consolidated Gas Company to examine the plants of the company for the purpose of making an estimate of values?

A. What engineers?

Mr. BURR: Do you refer to Messrs. Hough and Logan?

Mr. MATHEWSON: I had nothing to do with the naming of the engineers. I refer to an arrangement by which the defendants were entitled to send engineers to the plants of the Consolidated Gas Company, to inspect those plants for the purpose of testifying as to their value.

Mr. BURR: You need not examine this witness with regard to that. We concede that was the fact.

The WITNESS: That matter was arranged by counsel amongst themselves, and I have never had any definite statement from any of the counsel so far as I am individually concerned.

Q. You do remember that it was also arranged that the defendants' experts might have an opportunity to examine the books of the Consolidated Gas Company respecting the cost of gas, and so forth?

A. I do.

Q. And you were in charge there, were you not?

A. I was.

Q. And you were not appointed for the purpose of inspecting the plant in order to determine their value at that time, were you?

A. I was assigned in charge of the accounts distinctly.

4568 Q. Now, you subsequently came to Mr. Carter, did you not, several weeks ago and asked him for permission to examine the plants, because, you said, there were certain vouchers which you could not determine whether to charge to construction or to repairs or replacements until you examined the apparatus involved?

A. That was all related in a letter addressed to Mr. Burr.

Q. But in substance that was the fact, so far, wasn't it?

A. As near as I can remember, yes.

Q. And did not Mr. Carter tell you subsequently that if you would give him a list of the vouchers which you doubted, with the items which you had a question about, that you might inspect that apparatus to see where the application should be made; do you remember that, in substance?

A. There was a statement that there was a list required from Mr. Carter.

Q. Do you remember telling him at that time that you would not give him any list, the first time you discussed it?

A. I don't remember saying that I would not give him any list. I told him it would be a very difficult and very tedious operation, and had the vouchers sent to him.

Q. You did not at that time consent to give him any list?

A. I had the vouchers sent to him.

Q. You did not consent at that time to give him any list or to name the vouchers?

A. I repeat exactly what I have said to you, that I told him it would be very difficult indeed, because it involved a large number of vouchers, which were subsequently sent to him.

Q. Did you tell him at that time when this first came up, several weeks ago, that you would give him a list of the vouchers or that you would give him the particular vouchers to which question was made?

A. I never told him that I would give him a list, but, after
4569 consultation with Mr. Burr, I sent the vouchers to him.

Q. Don't you remember that subsequent to that conversation you were in Mr. Burr's office when Mr. Burr called me up on the telephone and asked why Mr. Marks could not inspect the plant, and weren't you informed that I told Mr. Burr that what we wanted was a statement of the vouchers which were in question, so that we could get which were doubted, and in that event you should be permitted to inspect the apparatus involved in those vouchers, to determine what their obligation should be? Don't you remember something like that?

Mr. BURR: I object to that, asking this witness to testify to a conversation between Mr. Burr and Mr. Mathewson over the telephone.

The MASTER: If he cannot answer the question he can say so.

A. Why, of course, I cannot answer it.

Q. Were you informed by Mr. Burr at that time that my position was that if you gave a list of the vouchers or told us which the items were that were questioned that you might inspect the plant as to those items? Weren't you so informed by Mr. Burr, in substance?

A. I recall Mr. Burr mentioned, and I don't know at that time mentioning the fact that this request had been made, and my reply being that the number of vouchers involved were so large and so numerous, being classifications of vouchers which required a general examination because they were general classification work, that it was impossible, and finally I think it was my suggestion that all of the vouchers of which we were in doubt should be sent down for Mr. Carter's examination, which was done, I think.

Q. No matter about that, you are getting ahead of the story.
4570 Weren't you informed that some days subsequent to that a conference took place in the office of the Master at which Mr. Burr was present and at which I was present, at which the same subject was brought up and that I repeated before the Master that if a statement was given of the vouchers to which objection was made, or if we were informed what they were, that Mr. Marks might inspect the plant to determine what their application should be? Weren't you informed of that?

A. I was not present at the time.

Q. Weren't you informed of that? Be good enough to answer the question?

A. I was not present at the time and I shall state what I have told you in a general way, but cannot recollect this specific instance as following the conversation you name.

Q. And after Mr. Burr informed you of the purport of this conversation before the Master did you not then request Mr. Hall to write and say that the vouchers to which exception was made were spread out on the table or were accessible to the Consolidated?

A. If Mr. Burr so directed me I certainly did.

Q. You did at any rate thereafter request Mr. Hall, you say, to write a letter stating what the vouchers were or where they could be identified, didn't you?

A. Why certainly I did.

Q. And don't you know that immediately after that letter from Mr. Hall was received that you went and found the vouchers, hundreds of them, perhaps a thousand, and spread them out on the table and we were told that those were the vouchers?

A. That was a matter of Mr. Hall's.

Q. Isn't it your information that that was done?

A. I saw those vouchers, I think, I cannot swear to it posi-
4571 tively, resting on either Mr. Carter's or Mr. Addicks' table in the office of the Consolidated Gas Company.

Q. Weren't you informed that in spite of the fact that no specific vouchers were pointed out in that thousand vouchers that the Consolidated Gas Company was instructed by me to waive all technicalities and let you examine in reference to the whole thousand?

A. No, I was not.

Q. At any rate you were permitted thereupon to make an investigation?

A. Through the kindness of Mr. Addicks, yes.

Q. Now, when you say you were a member of the Advisory Board of Engineers, who appointed this Board of Engineers, or who constituted them a Board?

A. By direction of the Corporation Counsel that Board was named and approved.

Q. It had no official existence except as it was appointed by the Corporation Counsel, had it?

A. No, they were on the same footing as the accountants.

Q. Now, as a matter of fact, you found an item of $282,000 which was charged to depreciation, you say, of mains in 1905, which you

reduced by something over $59,000, on the ground that there were certain mains which should have been charged off in 1903 and 1904 included in the amount, is that right?

A. The accountants said so, with the approval of the Advisory Board of Engineers.

Q. You approved it?

A. I did, as a member of the Board.

Q. Do you know whether in fact those mains were abandoned before 1905?

A. The accountants' statement was accepted by the Board.

Q. Do you know anything about it except what the accountants said to you?

A. What they stated on the record, that was all.

Q. Do you know anything about it except what the ac-
4572 countants said about it?

A. What they stated on the record is all we know, and we believed that.

Q. If, as a matter of fact those mains were a proper asset of the company and were considered to be a proper asset in 1903 and 1904, there was no reason why they should have been charged off earlier than they were, was there?

A. That is purely an academic question.

Q. You cannot answer it?

A. No.

Q. And if they should have been charged off in 1903 and 1904 instead of 1905, then it would swell, of course, the depreciation charge for 1903 and 1904 to a corresponding amount?

A. It would.

Q. When did you begin the examination of the 14th Street plant?

A. The early part of last week; I am not exact on that statement; I would have to look it up to be certain of the day.

Q. Cannot you tell the exact day, try to think?

A. No.

Q. Try to think and let me know, as nearly as you can recall what day you began?

A. Not without reference to my notes, which are not here.

Q. Will you get your notes so you can tell what day and hour, as nearly as you can, you began this examination?

A. This afternoon, yes.

Q. When did you complete it?

A. Practically finished it last Saturday afternoon.

Q. Do you mean to say that within that period you made a complete inventory of the 14th Street plant?

A. A complete inventory, alleged, was furnished us by the Consolidated Gas Company.

Q. The inventory that was furnished you was the inventory made by Mr. Mayer, one of the witnesses for the complainant, was it not?

A. I don't know who made it. There were no figures attached to it.

Q. Were you not informed who made it?

A. I was not. It was in wretched shape, a jumble.

4573 Q. T[illegible] bad we were courteous enough to give it to you, if it was so [illegible]d. You say that from a catalog furnished by the Consolidated Gas Company an inventory was drawn off. What catalog was that?

A. There was a bunch of seven papers—of eleven papers handed to us, one to Mr. Burr, which has since disappeared——

Q. You do not charge us with taking that I suppose?

A. It was impossible to do anything with it in that shape and it was then drawn off in the proper form of a bill of sale or inventory.

Mr. MATHEWSON: I move to strike out the word "proper."

Mr. BURR: Well, in the form of a bill of sale.

The WITNESS: In the form of a bill of sale or inventory, for the purpose of using it.

Q. Is this the document you now show me?

A. That is the document.

Q. What was the catalog which you referred to? Was it the inventory which Mr. Mayer used?

A. No, indeed. Mr. Mayer would not have furnished anything like that.

Q. Were the catalog and inventory which were furnished by the Consolidated Gas Company identical, or what was the distinction?

A. The catalog only was furnished; there was no inventory in the proper sense of the word, completed in figures.

Q. What I am getting at is, were there two documents delivered to you, one a schedule of the property at 14th Street and the other a catalog or do you refer to the same papers when you use inventory and catalog?

A. When I speak of the Consolidated Inventory or catalog I mean one and the same paper.

Q. Well, you have not so spoken of it before. You do
4574 mean one and the same paper, do you?

A. Yes, which has no figures upon it.

Q. In other words, this catalog or inventory was a list or purported to be a list of the property at 14th Street as the Consolidated had it from Mr. Mayer, did it not?

A. I don't know how the Consolidated had it.

Q. Well, as the Consolidated had it, to put it that way?

A. As the Consolidated had it, yes.

Q. Did I understand you to say $1,454,000 was a figure arrived at by consultation of the gentlemen named by you and also by examining Mr. Rowland's figures?

A. I stated that——

Q. Was my understanding correct?

A. No.

Q. Well, it was not then reached by conference between you gentlemen, is that right?

A. It was not reached. They are my own figures.

Q. Did you value the iron work yourself?

A. I did.

Q. Did you value it independently of Mr. Logan?

A. I checked every one of Mr. Logan's figures and——

Q. Did you agree with Mr. Logan in every instance to a cent?

A. I did not.

Q. In this $1,454,000, so far as it includes property acquired since 1884, are not your figures identical in every instance with Mr. Logan's figures for the same items?

A. No, except in the case of holder and steel tank, the $225,000 fixed by Mr. Logan, being checked, was adopted by me.

Q. Did you not adopt his estimate of $50,000 for foundation for steel tanks?

A. I did not. I figured that myself.

Q. What do you mean by "Logan est." after "foundation for steel tanks," followed by the figures $50,000?

A. The typewriter put that one line too low.

Q. Ought that then to be opposite holder and steel tanks?

A. Yes.

4575 Q. What was Mr. Logan's estimate for the foundation for the steel tank referred to?

A. He did not make any estimate, stating that it was a very expensive foundation, merely.

Q. Will you point out any other item specified here which was not in existence in 1884 which Mr. Logan valued and which you have valued at a separate figure?

A. I do not see any item in that inventory which was valued by Mr. Logan subsequent to 1884 where I specifically gave a great deal of attention to his work; it was the holder which I understood he was a builder of which commanded my attention.

Q. Will you point out any one of the items which you have valued as added since 1884 here where your valuation is different from Mr. Logan's, if Mr. Logan made a valuation of it?

A. In the items shown there, there is nothing which I can find which relates to Mr. Logan's work or refers to it, excepting the holder. $225,000.

Q. Then that is the only item that you find that you took Mr. Logan's valuation as he gave it?

A. Checked it and took it.

Q. Now, so far as the property which you think existed in 1884 and which still exists is concerned, you took Mr. Thomas F. Rowland's valuation of 1884?

A. Yes, after checking it.

Q. And you figured depreciation of $725,175?

A. Yes.

Q. How do you know that the apparatus which you had in mind and included in that and the property in general is exactly the same now as it was then?

A. Well, the names of things is a matter of common consent, and I find them in the same spot.

Q. Did you have any information as to the measurements of these different pieces of apparatus by Mr. Rowland except what ap-

4576 peared on the schedules in evidence as showing Mr. Rowland's appraisal?

A. I have no further evidence than the statement made in Mr. Rowland's appraisal.

Q. Do you know whether any part of that apparatus has been renewed or replaced since 1884?

A. I assumed that a great deal of it had been repaired.

Q. You found the apparatus working, didn't you?

A. Yes.

Q. And still you take off $725,175 of depreciation out of the $1,706,294, total valuation. Is that correct?

A. Yes.

Q. If parts of the apparatus have, from time to time, been renewed, then a new life starts for that apparatus, doesn't it?

A. You mean repaired?

Q. I mean renewed or repaired?

A. Why, yes.

Q. And then the 50-year life which you assume, or whatever life you have assumed would not apply as dating from 1884 would it?

A. To the apparatus as a whole.

Q. Yes.

A. Yes, it would.

Q. Would it to those particular items?

A. To the particular repairs, no.

Q. What life did you assume for this apparatus?

A. The retort house was built in 1853——

Q. What life did you assume for it?

A. And I assumed a life of 50 years.

Q. Then the life would have expired three years ago. Did you give any valuation for it at all now?

A. I beg your pardon?

Q. Then the life would have expired three years ago, if you gave a life of 50 years and it was built in 1853?

A. I misunderstood you, I don't think I answered your question correctly. You asked me what life I assumed, for instance for a retort house?

Q. Yes. I will ask you that.

A. If you will take the annual depreciation of .85 of one per cent. which applies to a building or a piece of apparatus kept in
4577 perfect repair, you will find that that will give a life of about 110 years, by dividing it.

Q. Are not the retort house walls apparently in perfect condition to-day so far as substantial strength is concerned?

A. Indeed no; in many cases the brick is in very bad shape.

Q. It looked to you as though it were about to fall down, or anything of that sort?

A. Oh, no, just crumbling away.

Q. What is it made of?

A. Brick and iron.

Q. And if any part of it starts to tumble, I suppose new brick can be substituted, can they not?

A. They can.

Q. That would be a repair, would it not?

A. Yes.

Q. Were not the other buildings in use and supporting the apparatus which they were designed to support?

A. What other buildings?

Q. Fourteenth Street plant.

A. Some of the substantially built buildings were in good shape and others mentioned in the inventory were simply wrecks; the sheds more particularly.

Q. Oh, the sheds?

A. Yes.

Q. Wooden sheds?

A. For instance the shed with the stack, the stack was truncated at a height of about four feet above the ground and the shed itself was standing in all sorts of shapes.

Q. That was the wooden shed, was it?

A. No, there was corrugated iron and there was a wooden roof and there is either tin or tarred paper on top of it, and there was a brick wall on the outside of it and——

Q. Did you go through each one of these pieces of apparatus and make your estimate for the depreciation for each individual piece?

A. I am talking of the buildings. You mean——

Q. I am referring to the whole property, buildings, apparatus and other property. Did you go to each individual piece of
4578 apparatus and make a separate estimate of its condition so far as each particular piece was concerned, as Mr. Mayer did in his testimony?

A. Will you allow me to explain how I did depreciate each piece?

Q. No. I want to ask you that question and have it answered. It is simple, I think.

A. I examined each piece with a view to depreciation.

Q. Did you set a depreciation upon each piece of property in making up your estimate?

A. You mean each building?

Q. I mean each individual piece of property separately, as Mr. Mayer did.

A. In the case of figures given by Mr. Rowland, I am liberal enough to assume that it has been kept in perfect repair and gave a depreciation due to inadequacy and obsolescence.

Q. You found that Mr. Yalden testified in 1884 that the property was virtually as good as new?

A. As I assumed myself, in my depreciation, that the property has been kept in perfect repair.

Q. Now let me repeat the question: Did you go over each individual item of apparatus and property and set opposite each item the amount of depreciation for that particular item as you found it exists, and if so, will you produce the memoranda which you so made?

A. In the case of buildings——

Q. Can you not answer my question yes or no?

A. Certainly, I did not go over every piece of property and put down depreciation.

Q. Now, Mr. Rowland's testimony was as to the value of this property in 1884, as you understand it?

A. Yes.

Q. And your testimony at present, if you adopt his figures, would be upon the basis of the valuation of 1884, would it not, so far as the property still remains?

A. So far as I have used his valuation, yes.

4579 Q. Where is the balance of your estimate beyond the $981,119 which is Rowland's valuation less your assumed depreciation? You took what value, the present value?

A. I took entirely my own estimate and checked out by comparison with Mr. Mayer more particularly and——

Q. The present value or what value?

A. The present value.

Q. The cost of reproduction now?

A. The actual structural cost.

Q. So that even assuming that you are right regarding the existence of the property in 1884 which you assume to exist now, your total does not represent the cost of reproduction now, but is a conglomerate made up of the cost in 1884, or the value at that time as estimated by Mr. Rowland, plus the present value of the balance of the property, is that right?

A. I would say that is about it.

Q. And when you use the term "structural cost" in your testimony, that is what you mean, is it, so far as this total of $1,454,000 is concerned?

A. I mean to give the valuation of an intending purchaser intending to operate the works in $1,454,664.

Q. How did you estimate the value of the iron work in the various heavy pieces of apparatus where the value depends upon weight as one of the items?

A. For instance in the case of tar scrubbers, there was a concurrence or agreement as to weight between Mr. Mayer and Mr. Rowland and also Mr. Logan. We had no time to rework these weights, we had to accept the figures given by Mr. Mayer and——

Q. What did you assume to be the weight of the tar scrubbers?

A. I have not Mr. Mayer's figures here.

Q. What did you assume to be the cost per pound of delivery of those delivered?

A. I would have to look up my notes to answer that question.

4580 Q. Did you make any assumption?

A. Yes.

Q. How did you make up your price per pound, what were the details of that computation whatever it was?

A. You refer to the price per pound for what?

Q. Tar scrubbers?

A. If you want, I can give *give* you those figures this afternoon. I have not got them with me.

Q. You have not bought or installed any apparatus yourself other than as you have testified in your original examination, have you, Doctor?

A. Do you mean iron?

Q. Gas apparatus. Have you had any experience, in other words, in the purchase of apparatus or construction of gas apparatus since your original testimony here?

A. Why, no, but you are speaking of purchasing iron.

Q. Well, scrubbers are iron, are they not?

A. Yes.

Q. That is quite right. I asked you——

A. But all iron is not scrubbers.

Q. I asked you what you estimated to be the weight of those tar scrubbers and what you estimated to be the price per pound delivered, and I would like to have the price per pound itemized so as to see how you made that up, referring to the price of the iron and the labor and so on?

A. Referring to the weight, I told you that I had accepted the figures given accordingly by Mr. Mayer and Mr. Rowland; referring to the price per pound, if you wish I will give you that this afternoon.

Q. I can tell whether they agree, the figures of these two gentlemen, when you say what they are. Let us take one stack, 24 benches, 6's; what did you put that in at, $50,000?

A. That is put in as $50,000.

Q. Present value?

A. Present value. It is new, to all intents and purposes, a
4581 new stack. Mr. Mayer's figures are $49,980.

Q. Then why down below do you take off depreciation 12 years at .85 of one per cent., say ten per cent., $11,600, which is a deduction from the one stack of 24 benches as well as all the other property in that house?

A. Will you allow me to explain the method of depreciation?

Mr. BURR: That is what he asked for.

Q. I asked you why you take it off if you say that stack of benches is as good as new?

A. In all cases of depreciation I use the word with its accurate meaning, of a lowering of value. Depreciation results from several causes. The most ordinary one is decay or wear and tear, as observed. There is another factor which is inadequacy, owing to the increase of the business. There is also another cause of depreciation, obsolescence, which is due to changes in the arts and in the methods and in the general growth of scientific knowledge; if a works built at a certain period is kept in perfect repair, meaning by that, always restored to their original condition, and in good working condition, there remains, assuming that, a depreciation due both to obsolescence and to inadequacy, and that is this depreciation which I have given you here of .85 of 1 per cent. annually.

Q. That is entertaining, Doctor, but you stated a few moments ago, that these items in addition to the $981,119 represented the cost of production now, and you put one stack, 24 benches, $50,000?

A. Yes.

Q. And you say that is as good as new?

A. It is being reset.
Q. It was reset in 1906, wasn't it?
A. Being reset now.
Q. As good as new, very good. Now, the four stoking ma-
4582 chines, you put down at $16,000?
A. Yes. $16,000.
Q. And that is exactly the cost as given by Mr. Mayer, is it not?
A. Mr. Mayer's figure was $15,200.
Q. No, that is the $16,000, which he gave as the cost, less five per cent. depreciation, or $15,200?
A. Yes.
Q. Your valuation new is exactly the same as his?
A. Exactly, and I assumed them to be in perfect repair.
Q. Your next item, one Brouder stoking machine, $4,400, I see is exactly the same as his estimate?
A. Yes.
Q. One De Brower, $10,500, your estimate I see is exactly the same as his estimate new?
A. Yes.
Q. Your next item one Ross drawing machine, you give a valuation of $5,400, in which you are exactly the same as Mr. Mayer?
A. In which I agree with Mr. Mayer.
Q. The next is three extra engines?
A. Yes, small engines.
Q. $700?
A. I agree with Mr. Mayer there, it is $705 on his.
Q. One Isbell Porter scrubber $7,000. Mr. Mayer's estimate is $6,860 without depreciation?
A. Yes, I practically agree with him.
Q. The next one is Hunt Automatic Railway, $8,000. Do you agree with Mr. Mayer on that?
A. Practically. I am slightly less than his.
Q. Yes, his is $8,075.
A. $8,059.
Q. That is after depreciation of 2 per cent. is out, the $8,059. Two 60-ton coal hoppers, $3,000. His estimate was $3,315 wasn't it?
A. Yes.
Q. How many pounds did you assume there were in those hoppers?
A. These 60-ton coal hoppers?
Q. Yes.
A. How many pounds of what?
Q. How much they weighed?
4583 A. Well, they are very large structures, and they are up at the upper end——
Q. That may be, but what was your estimate of weight in your computation?
A. I will figure that out and bring it along for you.
Q. Did you figure that out before?
A. Yes, in a general way. Of course you understand you cannot walk around works——

Q. I understand, but I wish you had your memorandum with you, it would have saved me some trouble. What were the hoppers made of?

A. They seemed to be a composite arrangement.

Q. Describe them as nearly as you can.

A. They were covered with dirt and pyramidal in shape and came down to a point where they were able to dump coal, that is about as near a description as I can give.

Q. How were they sheathed?

A. That would be difficult to say.

Q. You did not find that out?

A. You could not in the time allotted.

Q. And you did not, of course?

A. No.

Q. Do you know whether——

A. However, I did not suppose——

Q. Do you know what the thickness of shell was?

A. In that case?

Q. Yes.

A. Well, I looked at it. I can tell you from my memorandum what I thought it was. As I do not differ with Mr. Mayer at all in the matter to amount to anything——

Q. His valuation is $3,315 new?

A. And mine was $3,000, there is about 10 per cent. difference between us.

Q. Take the exhauster house apparatus, 15th Street?

A. $8,000.

Q. Is that the same as Mr. Mayer's?

A. It is a little over his.

Q. Two 50-horse-power boilers following you put at
4584 $3,000?

A. Yes, and I see Mr. Mayer's figure is $3,094.

Q. Do you know whether the amount you took off for depreciation was as great as Mr. Mayer's or less?

A. Somewhat greater.

Q. So that speaking generally, of the items which you valued as added since 1884 and which make all of the $1,454,664, with the exception of the $981,119 which you attributed to 1884 apparatus, your figures are the same as those of Mr. Mayer where he valued it?

A. To all practical purposes, on the structural cost. I am in agreement with Mr. Mayer. Will you permit me to call your attention——

Q. Let me ask you another question. You did not make any estimate of the present cost of reproduction of the property which was in 1884 and which you assumed to be still in existence and which you valued at $1,706,294, original cost, did you?

A. I did not. I estimated its present value.

Q. Have you the details of your valuation here, showing item by item what the values were?

A. These that I have here are only rough memoranda. The details which I have handed you over there—may I add one thing?

Q. No, this does not give the details of the valuation amounting to $1,706,294 for the 1884 apparatus.

A. May I make a correction here now? In looking over these details, I think that I omitted to put in four small purifiers, $16,000.

Mr. PAGE: That is without depreciation?

The WITNESS: Depreciated 10 per cent., net $14,400, making the total valuation $1,469,064.

Q. Now, Doctor, I would like to have you give me the schedule or memoranda showing in detail the items which you included in the $1,706,294 valuation?

A. I will try to explain that to you——

4585 Mr. MATHEWSON: I do not care to take the space to spread it on the record.

Mr. BURR: Does that appear in your schedule?

The WITNESS: The first column of my comparative schedule is a reproduction of Rowland's valuation of 1884 as given on pages 818 to 825, Senate Document 47, 1886.

Mr. BURR: And which is in evidence here?

The WITNESS: And which is in evidence.

Mr. BURR: Introduced by the Complainant?

The WITNESS: Introduced by the Complainant.

Q. Have you not made a memorandum of that and opposite placed your values making the $1,706,294? Have you not drawn it off and cannot you give me a list of that so I can see just what property you include in the description?

A. All the property given by Rowland in the first column. There are matters I would not like to have anybody see except you, Mr. Burr, on this. I will, if you like, tear off this and this, and put it in.

Mr. MATHEWSON: We have the Mayer and Rowland and Logan values in. If there is anybody not already in evidence, tear that off. There is no objection to my having those, is there?

The WITNESS: I would prefer you should not have these.

Mr. MATHEWSON: I do not care for those. All I care for is the list of the property——

4586 The WITNESS: There is one of them (handing paper). I will give you the next.

Q. Well, but you have not got your values in here in all these cases as to this apparatus?

A. I will give you this (handing another paper). Those are Rowland's valuations which have been gone over by me and accepted or——

Q. But in many items, Doctor Marks, there appears to be no valuation opposite?

A. It did not exist in that case.

Q. You mean the apparatus did not exist?

A. The apparatus or building did not exist at that time.

Q. Then you have not included any values for apparatus in Mr. Rowland's exhibit that you do not find now existing?

A. Oh no, I accepted Mr. Rowland's exhibit as a whole.

Q. Do you mean to say in Mr. Rowland's exhibit there are certain

buildings or other property included and valued which did not exist then?

A. There are certain buildings omitted from Mr. Rowland's exhibit or inventory which were not in existence in 1884, but are in existence now.

Q. And you have valued those separately?

A. And I have valued those separately, accepting Mr. Rowland's as a whole, after going over it with a great deal of care and checking it out.

Q. I understand these two sheets that you have given me are the items making up the total of $1,706,294?

A. They are, yes.

Mr. MATHEWSON: I will ask to have those marked for identification, so if I should use them later, they can be identified.

Paper marked Complainant's Exhibit 257 for identification.

Mr. MATHEWSON: I have a few more questions as to these items since 1884, and I will ask you to bring your details this after-
4587 noon, and I will postpone my conclusion, as I cannot proceed without them. I shall be very brief then, I think.

Recess until 2.15 P. M.

After Recess.

WILLIAM D. MARKS resumes the stand and further testifies:

The WITNESS: During lunch time I have re-worked the holder foundations which was an item of $50,000, and two tar scrubbers, an item of $42,706, and I am prepared on those two. On the hopper there are so many figures; it needs so many different kinds of wood and iron that it requires an engineer's pocket book and an hour or two this evening to prepare that.

Cross-examination (continued) by Mr. MATHEWSON:

Q. My question was whether you actually worked out these values that you gave in advance, with your weights and prices per pound before you and whether you examined and found out what the character of these items was; for instance, what kind of iron or steel was used; whether before you testified this morning you had made an examination?

A. Oh, yes.

Q. As to each particular item, and figured it out in detail?

A. Yes. You must recollect I have been at this sort of job thirty-five years.

Q. When you spoke about your not knowing this morning what the hopper was sheathed with, you said it was covered with dirt?

A. On the outside.

4588 Q. Well, a hopper is away up in the air isn't it?

A. Yes.

Q. And the dirt to which you referred was the ordinary soot or blackening of a gas works, wasn't it?

A. Everything—dust, coal dust, cinders and everything else.

Q. And you did not take occasion to mount and examine and scratch the sheathing to find out what it was made of?

A. No, I accepted Mr. Mayer's statements as to materials and checked them roughly.

Q. Now, in reference to your figures for the holder, 3,250,000 cubic feet capacity, respecting which you accepted Mr. Logan's valuation of $225,000——

A. For the iron.

Q. (Continuing.) ——Instead of Mr. Mayer's valuation of $262,224 for the value of that holder new, everything included, did your $225,000 include the iron work of that holder proper alone?

A. The $225,000 included the steel tank and the holder, but not the foundation.

Q. What did you take to be the weight of that holder, including the tanks and pipes, in making that computation?

A. In that matter I left it entirely, the weights, to Mr. Logan, and checked by dividing the capacity into Mr. Logan's price.

Q. You assumed his weights?

A. I accepted the weights without question.

Q. You did not make measurements yourself of length, breadth and thickness of the parts from which you might compute the exact weights?

A. I accepted Mr. Mayer's length, breadth and thickness without criticism.

Q. But Mr. Mayer did not state what the thickness was in the description which you have of that item, did he?

A. It was not necessary to know the thickness because I accepted Mr. Logan's figures in that matter.

4589 Q. You accepted his estimate without special measurements on your own part?

A. I did.

Q. And did you know what pressure that holder threw?

A. I did not ask.

Q. What price per pound, including the value of the permanent frame, did you assume in computing the value?

A. I did not ask, I accepted Mr. Logan's figures and made a capacity check.

Q. You have valued the foundation for steel tank at $50,000 and have stated that those are your figures, and not Mr. Logan's estimate?

A. I have.

Q. How many yards of excavation did you allow?

A. Excavation?

Q. Yes.

A. 200 feet diameter, 8 feet deep, 9,309 cubic yards at fifty cents; $4,654.

Q. The excavation you fixed then at only $4,654?

A. $4,654.

Q. How much per yard did you allow for taking that dirt out?

A. Fifty cents.

Q. Do you mean to say you allowed only fifty cents for taking it out and taking it to the dump and disposing of it?

A. I do.

Q. You have not done any contracting of that sort in the City of New York recently, have you?

A. I have not.

Q. Did you allow for any piles under that foundation?

A. 3,000 piles at $7.50 each, driven; $22,500.

Q. That was the sum that Mr. Mayer allowed for piles, wasn't it?

A. I thought Mr. Mayer's price was $5.00. I do not know.

Q. No, $7.50. How much concrete did you allow for?

A. Six inch concrete, 150 feet diameter, circle in centre, 327 cubic yards.

Q. 327?

A. 327 cubic yards; 2 foot ring, 21 feet wide around the outer edge, 847 cubic yards. Then in place of the brick wall I allowed——

4590 Q. Wait a minute. How many yards of concrete, all told?

A. One thousand five hundred yards of concrete, all told.

Q. You did not measure the amount of concrete, did you, but accepted the figures of Mr. Logan in that regard?

A. I accepted Mr. Mayer's figures.

Q. As to the number of yards of concrete?

A. I did not, as to the dimensions of the foundation.

Q. In the retaining wall how many thousand brick did you allow, and at what price?

A. I assumed a two-foot concrete wall for that, allowing 326 cubic yards, assuming that the cost would be the same.

Q. Well, how much did you allow then for the cost, for the concrete instead of brick?

A. At $7 per cubic yard; $2,282.

Q. Well, Mr. Mayer's figure is $3,750 of brick and you were not then reproducing the foundations exactly as they now are, were you?

A. Mr. Mayer estimates brick work at $25 per thousand laid. To me that appears to be an overestimate, at the present rates.

Q. You estimated concrete instead of a brick wall as it exists?

A. Yes.

Q. How about the blue stone coping? How many feet, and at what price?

A. I let that go along with the extra thickness of the concrete wall.

Q. Mr. Mayer's estimate of the blue stone coping was 390 cubic feet at $3.50, so that the retaining wall and the coping together, according to his estimate, amount to over $5,000?

A. Yes.

Q. And for both you allowed $2,250?

A. Yes; for both $2,282. About one half of it.

Q. How deep did you figure the excavation?

A. I took an excavation at about eight feet since the wall was carried down to a depth of seven feet.

4591 Q. Does that make up your exact total of $50,000?

A. Oh, no. The total is as follows:

Piling	$22,500
Concrete work	10,500
Excavation	4,654
Total	$37,654

Allowance to contractor for profit and contingencies, the difference between that and $50,000.

By the MASTER:

Q. About what per cent. is that which you allow for contractor and contingency?

A. About 33 per cent.

By Mr. MATHEWSON:

Q. Have you ever done any excavating on the Island of Manhattan?

A. No.

Q. Never constructed anything on the Island of Manhattan?

A. Never. I have the two tar scrubbers if you care for them. They are an important item.

Mr. MATHEWSON: That is all.

Mr. PAGE: I would like to ask Mr. Marks one or two questions as to the plants.

Mr. BURR: I have no objection to your asking a question.

Mr. MATHEWSON: I have another question or two.

By Mr. MATHEWSON:

Q. Your investigation discloses that Mr. Mayer had prepared his valuations with great thoroughness, didn't it?

A. Of the structural cost.

Q. And in regard to the valuations for structural work you
4592 substantially agreed with him?

A. With him; and I think most of the others did, except in the case of the gas holders.

By Mr. BURR:

Q. I do not want to dwell at any length upon this question about the vouchers, but as a matter of fact was not the situation this: That when a period arrived that the accountants, acting with the Board of Advisory Engineers, were unable to ascertain from certain vouchers themselves what way they had been charged up in the books of the company and whether they were properly charged to one account or another, it was deemed advisable to have an inspection of the plants for the purpose of ascertaining the method adopted by the company in that regard; that is, whether these repairs of a certain kind were really construction, or should be charged really to construction instead of to operating account; is that the fact?

A. That is the fact. We wished to learn of the disposal of that material.

Q. Whether it was in the plants themselves on storage in the storerooms, or whether it had been used in the plants, actually used?

A. Yes.

Q. And for that reason a certain number of these vouchers were set aside for the purpose of having Mr. Carter or some other officer of the company examine them?

A. Yes.

Q. As they had expressed a desire to examine them?

A. Yes.

Q. And finally that having been done it was arranged with Mr. Addicks that a quick inspection of the plants should be had for the purpose of observing the manner in which those repairs or materials were treated?

A. Mr. Addicks took us to see not the generating plants, but two of the shops—the meter shop and one of the jobbing shops.

4593 Q. And in that way gave you a general view of the system adopted by the company in treating these repairs?

A. Yes.

Q. Now, the fact that at this late day you are called as an expert to testify as to the value of the plant arises quite unexpectedly, does it not?

A. It does.

Q. It was not intended that you should testify, and you heard me so state a long time ago at one of these hearings, did you?

A. I did.

Q. And the idea was that you were to act in an advisory capacity with the accountants as it was then stated?

A. It was.

Q. And the fact you are here now testifying is due to the fact that one of the experts called by the State was not accepted by them, as you understand?

A. It is as I understand.

Q. So that there has been no neglect or delay on your part in doing any duty that was assigned to you to do?

A. None whatever, so far as I have been able in the time permitted.

Q. You have stated the amount of depreciation which you have allowed upon the 14th Street plant. Will you be good enough to state upon what you state that depreciation and how you arrive at it?

A. First of all, I did not assume the attitude of an engineer, but that of an intending purchaser wishing to purchase the plant and to continue to operate it, believing that to be the attitude in which the company to-day is. It would not in that case be fair to assume the actual structural cost of the gas works going back so many years, regardless of depreciation, or, on the other hand, to assume the scrap cost of the works and stock, and the buildings and apparatus idle, without intention to make further use of them.

4594 Q. Now, you say you have not estimated the actual structural cost of the buildings and apparatus, nor have you estimated the scrap cost of the abandoned works. On what basis have you estimated the present value of these works?

A. On the basis of the structural cost, less actual depreciation.

Q. Then how have you determined the depreciation?

A. In determining the depreciation in the correct sense of the word, the first consideration would be the visible decay of the apparatus due to wear and tear. The second consideration would be its adequacy or inadequacy to the purposes for which it is used to-day; and the third consideration would be its obsolescence, meaning by that the methods of manufacture and the methods of transmission of power, the general changes, and the growth of technical knowledge as applied to gas making, the progress of the business since the design and building of the works and whether or no the works are kept up to date.

Q. Can you give me an example of the depreciation due to decay and wear and tear?

A. Yes. For instance, a brick building with a slate roof might have its life fixed at 100 to 120 years. Although kept in perfect repair all the time, still the decay and the changes of time would probably have made it earn its cost in the time mentioned and warrant its replacing, because of the apparent wear and tear, the rusting of the trusses, the decay of the bricks, the movements of the foundations, although all the time every repair that was possible might have been done to it.

Q. Is there anything more you desire to say on that point?

A. Regarding the depreciation due to decay I would also mention the case of a boiler. It is usual amongst engineers to assume the life of a boiler kept in perfect repair to be somewhere in
4595 the neighborhood of fifteen years, although this life will very largely depend upon the quality of the water which is used in it and the severity of the services required of it.

Q. Will you give a case of depreciation due to inadequacy?

A. In his testimony Mr. Simpson states that at present the Consolidated Gas Company does not lay down any mains less than eight inches in diameter and that for many years he has not laid any mains less than six inches in diameter, in a street in Manhattan. For this reason it would appear as though the one and one-half inch, the two-inch, the three-inch, the four-inch and five-inch mains were regarded by the Consolidated Gas Company as being inadequate for the demand of the present day. Ultimately they will have to be abandoned and the mains depreciated by the cost of these small mains.

In the case of the retort house the water appeared to be within six feet of the floor level—of the retort house floor, preventing deep excavations. The roof of the retort house is so low that the present benches reach very nearly up to the trusses, that is to say, to the bottom of the trusses; and, therefore, if larger benches than the present direct fire six retort benches are required, such as are now being used—I mean the regenerative benches, with a larger number of retorts of about twice the total height, it would be necessary to raise the roof of the retort house fifteen or twenty feet before putting them in. The present retort house is inadequate to the needs of the manufacture of coal gas up to the present date; that is, after the methods of the present day.

It is obvious also that many of the smaller holders occupy much more ground and give very little capacity and they are not adequate

and will have to be abandoned and replaced by larger holders suited to the needs of Manhattan to-day and its business.

4596 Q. Now can you give me an example of depreciation due to obsolescence?

A. Yes. At various points in the 14th Street Works are located small and inadequate engines and steam boilers used for the purpose of pumping, or grinding coal or handling coke and operating coal handling machinery. There is but one gas engine in use for these purposes. These little old steam engines and boilers are extravagant to the last degree in their use of coal and heating, taking ten or twenty times as much as an economically designed gas engine or a large condensing steam engine. These small steam engine boilers are obsolete because they should all be replaced either by gas engines or electric motors operated by a generating station, driven by economical gas engines or steam engines of a large size.

Q. And it appears to-day there are other factors than mere decay and wear and tear entering into depreciation. Does Mr. Mayer appear to have taken into consideration anything else than decay in his depreciation?

Mr. MATHEWSON: Objected to. Mr. Mayer has testified and what he took into account his testimony shows. I do not think the witness can characterize it.

The MASTER: That seems to be a valid objection, Mr. Burr.

Mr. BURR: I think he can say from his experience——

The MASTER: You can say that in your brief.

Q. Well, does Mr. Mayer's depreciation appear to be small, even if based on that factor alone?

A. Mr. Mayer's depreciation, even if based on decay alone, appears to me to be small.

4597 Q. Assuming the existing works to be kept in perfect and thorough repair, covering all decay and wear and tear that occurs, would the buildings and apparatus in your opinion still be subjected to a depreciation?

A. Yes, there is still a depreciation charge due to inadequacy or obsolescence. It should be averaged as a percentage of the structural value of the works and written off every year.

Q. In the books of the company during 1905, what did you observe as to depreciation?

A. During that year the depreciation fixed by the Board of Directors on January 30, 1906, appears to correctly amount to about $1.71 per one thousand cubic feet of gas, or about .85 of one per cent. of the structural cost of the works, the whole works, actually, while the works themselves appear to have been amply repaired in the operating portions used for the purpose of generating gas.

Q. When you say that $1.71 appears to .85 of one per cent., upon what figure per thousand structural cost do you figure that?

A. $1.71 per thousand cubic feet of gas is placed against $2.00 investment per annual thousand cubic feet of gas and makes .85 of one per cent. on $2.00.

Mr. BURR: Now, if you want to ask any questions with regard to the 14th Street plant, Senator, I have no objections.

By Mr. PAGE:

Q. Do I understand, Mr. Marks, that you took the valuations in the Rowland inventory as they are stated and set them down upon this schedule which you prepared?

A. I did.

Q. And you accepted that valuation as the basis upon which you would figure your depreciation?

A. I made a rude check of the scrap sum stated by Mr. Rowland in 1884, and on finishing that check, item by item, it appeared
4598 to me a very liberal valuation, but at the same time a consistent one which I could accept, subject to depreciation.

Q. And I do not suppose that you refigured that entire inventory, did you?

A. It was out of the question. No mortal living could do it in the time allowed.

Q. And was the same true of the statement of values as given by Mr. Mayer?

A. It is. Mr. Mayer does not differ largely from my own figures of structural cost. You may say for all ordinary purposes they coincide, with the exception of the gas holders, and even there they do not differ largely. It is the question of depreciation entirely.

Q. Assuming some of the dimensions given by him to be correct and the prices per unit as given by him to be right you arrive at substantially the same result?

A. Yes, sir.

By Mr. BURR:

Q. Now, Doctor, we will take up the subject of the mains. I understand you made a very careful examination of the maps of mains which are on file in the office of the Consolidated Gas Company?

A. I have.

Q. Those maps, as I understand, show the mains in all the streets as they exist in the Borough of Manhattan?

A. They do.

Q. You have accepted as being correct the statement with regard to the mains in the Borough of The Bronx?

A. I have, that is the value of the mains in the Borough of The Bronx.

Q. Now, will you be good enough to state what was the nature of the examination you made and what was the result of such examination of these maps?

A. The maps are contained in 12 volumes of Insurance maps of the Island of Manhattan and of The Bronx. Employing as-
4599 sistants, every line of mains laid down on these maps was measured by means of steel tapes——

Mr. MATHEWSON: Measured on the maps?

The WITNESS: Measured on the maps by means of steel tapes. These assistants measured not only the straight pipe or distances, which probably across a folio would amount to 30 inches; they were also instructed to bend these steel tapes and to follow around each and every crooked piece or connection. It is possible to stand a steel

tape on edge and follow the most tortuous piece of pipe, that you can get hold of in that way. Every bend and every piece of crooked pipe as well as every straight piece of pipe was measured and the scale on the map, too, was measured with a steel tape; the object of that being to allow for the coming and going of the paper which would contract or expand the scale at the same time that it would contract or expand the paper on which the pipes were laid down. It appears that here is a possible error of about one-eighth of an inch in 36 inches, but that error may be either positive or negative; it may be an error over in one case or an error under in another case; and the error would be only a fraction of one per cent. in the measurements made on the map. These measurements were taken and they were laid down on a series of charts; each map having its separate chart or sheet. The locality of the pipe, that is to say the side of the street which it was upon, the street itself, the street at the beginning and the street at the ending and the side of the street at the beginning and the side of the street at the ending are all marked in the notation.

Q. Together with the number of the volume and the number of the map?

A. Yes.

Q. In the first column?

A. In the first column. Then off to the right are a series
4600 of columns marked, One and One-Half Inch, Two Inch, Three Inch, Four Inch, Five Inch, Six Inch, Eight Inch, Ten Inch, Twelve Inch, Sixteen Inch, Eighteen Inch, Twenty Inch, Twenty-four Inch, Thirty Inch, Thirty-six Inch.

Q. And what appears in all those columns?

A. In each of those columns appears the length of pipe which was of the diameter given at the top, and this was carried out in the case——

Mr. PAGE: Expressed in feet?

The WITNESS: Expressed in feet.

Q. As they appear to be in each street named in the first column?

A. As they appear to be in each street named in the first column. Each and every map had its transcript in the form of a sheet or chart made in this way, amounting to something over 300 maps. Each one of these charts was laid down by two men, and then when finished was placed in the hands of two other men, with instructions to go over the work independently for the purpose of checking any possible oversight due to fatigue or carelessness. Everything has been worked through in this way. Each volume of maps is bound together and the first sheet contains a recapitulation stating the total number of feet of each size of main contained in that volume.

Q. Have you fully described these charts now?

A. Yes.

Q. Will you take this recapitulation on each one of them and state what it is, what it appears to be?

Mr. MATHEWSON: Well, which is the recapitulation?

The MASTER: Excuse my making the suggestion, but why could

you not offer that recapitulation in evidence in connection
4601 with his testimony and put it in without taking time to question about it and have all the detailed sheets marked for identification, if counsel do not object? There is no reason for putting them all in.

Mr. BURR: I will accept that suggestion.

Mr. MATHEWSON: I don't know what these charts purport to show more than the witness has stated. I should like to know what else they show before I know whether I will object.

The WITNESS: The recapitulation is as follows——

Mr. MATHEWSON: Please do not give the totals and so forth until I see the schedules you propose to offer.

Mr. BURR: Then I offer these recapitulations.

The MASTER: Have you not a summary made of the whole thing?

Mr. BURR: Yes, but we have a recapitulation or summary of each map, and I want to offer that in evidence together with the summary of those recapitulations or summaries, the general summary, instead of as you say—I do not wish to encumber the record with all this vast amount of stuff here, but I want to get in evidence the recapitulation of each volume of maps.

The MASTER: Show them to Mr. Mathewson and see if he objects.

Mr. MATHEWSON: Have you the final recapitulation of everything?

The WITNESS: Yes, these three sheets contain the final recapitulation of everything.

The MASTER: All I want to do is to abridge it as much as
4602 possible. It is perfectly obvious that none of us wants all those details. It will make so much more to handle, entirely apart from any question of expense.

Mr. BURR: I offer in evidence the summaries of the maps as they appear on these ten groups or charts or volumes.

The MASTER: He offers ten pages consisting of summaries of the ten schedules to which these summaries are severally attached, and he has offered, I understand, a general recapitulation of the summaries.

Mr. MATHEWSON: I object, Mr. Master, to this testimony on the following ground: It appears that the maps which Doctor Marks has measured are not the primary evidence. It appears that the mains are transcribed upon the maps from the specific records kept by the company of the mileage and the laying of mains, and they are not transcribed frequently until long after; perhaps a year after, in many cases, before they appear in the books. So that if any discrepancy appears the primary source of information is the books and not these maps. They would be no more the primary record than would the map of an insurance company be a primary record as to what policies it had outstanding; its policy records and its ledgers being the original record, and the clerk in the insurance office merely trying to transcribe that accurately, or more or less accurately, upon the insurance map. Therefore, these computations taken from the maps cannot in the nature of things be accepted as primary evidence or as good evidence as against the books.

Secondly, the method of measurement which has been adopted by the witness, assuming that the maps were primary evidence, would be so wholly unreliable that I think it is obvious that the testimony would be valueless as against exact records which are kept and from which the maps are made up.

4603

The MASTER: Have you offered the general summary yet, Mr. Burr?

Mr. BURR: I am offering them all together.

The MASTER: I mean the general one that contains the results, the recapitulation of all the schedules.

Mr. BURR: Yes, and in connection with what Mr. Mathewson has said, I want to say that the evidence is here that these maps correctly show each gas main in the City of New York, and that the books are not necessary except for the purpose of ascertaining their distance from the curb, and that is not what we are concerned about. We are only concerned with the length of mains and the size of the mains——

The MASTER: Is not all the information you wish, for the purpose of argument, contained in your general recapitulation, the gross results of all your figures?

Mr. BURR: You see the great volume of material which we have here and out of that volume of material I only wish to offer the first page, showing the summary of each volume of maps; and then the recapitulation of that summary. I think for a proper understanding of the situation it would be necessary to have that. At present I will content myself with offering those three sheets.

The MASTER: These three sheets contain the gist of what you want to show by this tabulation?

Mr. BURR: Yes.

The MASTER: I will overrule the objection and take these three sheets that are offered. I should not take any more, I think, in view of the fact that the competency of this testimony is so more than doubtful; I would not be justified in encumbering the record with any great amount of detail for these figures. Manifestly you cannot show what the number of mains in a street is by making an abstract from a book which some person in the office of that company made up to purport to show. It is some evidence, possibly, but it is not evidence of such a grade that would justify us in encumbering the record with these details.

4604

Mr. BURR: It seems to me it correctly shows the situation, when the superintendent of mains testifies that it is correct.

Mr. MATHEWSON: He was testifying upon another point, whether mains were spread on the maps so they could be identified——

Mr. BURR: His testimony was that it correctly shows the mains in the city.

The MASTER: I will overrule Mr. Mathewson's objection. Those three sheets are allowed in evidence.

Mr. MATHEWSON: Exception.

Sheets received in evidence and marked City's Exhibits 89, 90 and 91.

Q. Will you state the general conclusion arrived at from your ex-

amination as to the number of miles in use, and the number of miles not in use, the number of miles abandoned, if it shows them, and whatever other information that general summary marked in evidence City's Exhibits 89, 90 and 91 may show?

A. Referring to City's Exhibit 91, the total actual mains on the Island of Manhattan are found to be 731.49 miles. In the Bronx they are estimated at 5.51 miles, being somewhat in excess of
4605 the actual mains down in The Bronx. Disused mains in the Island of Manhattan amount to 43.68 miles, as marked on the map. The abandoned mains as shown on the map amount to .05 miles; but it appears from the maps as if the abandoned mains had been erased and apparently were abandoned and no record kept of them. That, however, is a mere surmise.

Mr. MATHEWSON: I move to strike it out, then.

The MASTER: Strike it out.

Mr. BURR: Exception.

The WITNESS: The total of all mains, active, disused and abandoned, in the Island of Manhattan is 775.22 miles and in The Bronx somewhat less than 5.51 miles. The figures for The Bronx are taken from page 1988, printed testimony, Exhibit 85, October 31st, 1905, before the New York State Gas & Electric Commission in which The Bronx mains are valued at $47,450.37.

Referring to City's Exhibit 90, the final recapitulation of all the mains shown in the 10 volumes marked 1, 2, 3, 4, 5, 6, 7, 8, 11 and 12 is as follows:

2 inch	3,969.60	feet.
3 inch	138,057.22	feet.
4 inch	477,561.87	feet.
5 inch	430.27	feet.
6 inch	1,945,509.85	feet.
8 inch	468,847.20	feet.
10 inch	69,635.34	feet.
12 inch	305,248.17	feet.
16 inch	82,094.15	feet.
18 inch	32,771.97	feet.
20 inch	143,368.16	feet.
24 inch	35,391.73	feet.
30 inch	140,233.42	feet.
36 inch	19,163.95	feet.
For the Bronx	29,111.	feet.

4606 Referring to City's Exhibit 89——

The MASTER: Is it necessary, those things being in evidence, to have all these spread upon the record?

Mr. BURR: I thought for the purpose of the examination to have the one single line of figures, as the totals, on the record. That is all he is giving; otherwise we could not clearly understand them in the testimony.

Q. What does City's Exhibit 89 show?

A. Referring to City's Exhibit 89, the comparative cost of the Consolidated Gas Company's mains in the streets of New York City, from Mr. Simpson's figures——

Q. Do you need to read all that? That is in evidence, that shows what you stated?

A. Yes.

Q. You might state the difference, if any, existing, if you have not already stated, between the mains as found by your examination of the map and the mains as testified to by Mr. Simpson, and the difference, if any, in the valuation as stated by Mr. Simpson, and the valuation as stated by you.

Mr. MATHEWSON: No, he has the valuation on Mr. Simpson's mileage, as compared with the valuation on his mileage.

Mr. BURR: Very well, the statement shows for itself.

The WITNESS: Recapitulation, Exhibit 89. The measurements from the map shows 91.39 miles less of mains in the streets of Manhattan than are given by Mr. Simpson in his affidavit.

Q. What are they given by Mr. Simpson's affidavit as being?

A. In Mr. Simpson's affidavit the number of feet is 4,344,849.

Q. And what are they as easured from the map?

4607 A. Measured from the map, 3,862,282.9 feet. The cost of laying the mains from map measurement under cobble pavement would appear to be $7,141,231.51.

Mr. MATHEWSON: Of the mileage which you have measured on the map?

The WITNESS: Yes.

Mr. BURR: That is all I desire to ask him.

Mr. MATHEWSON: Does Senator Page desire to ask any questions?

Mr. PAGE: No, I do not desire to ask any questions.

Cross-examination by Mr. MATHEWSON:

Q. Referring to the 14th Street plant, I have figured up the depreciation which you have taken out of your valuations $725,175, $11,600, $6,472 and $14,400, and my computation shows the total to be $744,687. Do I understand you to testify that in spite of the depreciation charged off and the amount expended in repairs and replacements, that the 14th Street plant still shows a depreciation beyond that, in your opinion, to the extent of $744,687?

Mr. BURR: I thought you had finished with the 14th Street plant?

Mr. MATHEWSON: No, I had two or three questions but I did not wish to interrupt you.

A. I make the depreciation $744,687 due to obsolescence——

Q. No matter what it is due to. You have already explained that. I ask you whether you still find, in spite of the amount expended for repairs, renewals and replacements during the past twenty

4608 years, an additional depreciation in the plant to the extent of $744,687 due to the various causes which you have enumerated?

A. I do.

Q. And depreciation is a charge to operating account in that the

company must maintain its property or should maintain its property, is it not?

A. Yes, of .85 of one per cent. each year.

Q. But a company is entitled to take care of its depreciation by a charge to operating expenses as it currently occurs, isn't it?

A. Certainly, to the extent of .85 of one per cent.

Q. Well, whatever it is in any particular case?

A. Yes.

Q. And whether that depreciation occurs from one or the other causes to which you have referred?

A. Yes.

Q. Now, we will turn to the subject of mains. I understand that the first five columns of City's Exhibit 89 show the number of feet of each size of main according to Mr. Simpson's testimony, and the cost of the mains, assuming that they are of the lengths testified by Mr. Simpson?

A. Yes.

Q. According to your estimate of value?

A. Yes.

Q. And the last three columns show respectively the number of feet which you have obtained by measuring the maps?

A. Yes.

Q. And the cost of that number of feet of mains according to your testimony, assuming this same unit of cost as you did in your previous computation?

A. Yes, according to the chart which I have already offered as to the cost of laying mains.

Mr. BURR: You mean which was offered in evidence some time ago?

The WITNESS: Yes.

Q. Now, City's Exhibit 90 shows the sizes of mains and the mileage of each size according to your measurements of the maps, divided as to each volume of maps, is that right?

A. Yes.

4609 Mr. BURR: When you referred to the chart, the chart showing the cost of laying mains, you referred to the diagram showing estimated cost of laying mains in 1905 already in evidence, did you not?

The WITNESS: Yes.

Q. But upon Mr. Simpson's mileage and upon the mileage which you assumed upon measuring the maps, you used the same unit figure of cost?

A. The same unit figure of cost from the chart already offered in evidence.

Q. And as to City's Exhibit 91, that also shows lengths obtained by measuring the maps divided as to sizes and divided into active, disused, abandoned, and total, respectively?

A. It does.

Q. Where did you get the mileage of "disused" mains, what is the basis of your division of the mains into active, disused and abandoned?

A. The disused mains are marked disused on the maps; the abandoned mains are marked abandoned on the maps.

Q. And the balance you took as the active mains?

A. The balance I took as the active mains.

Q. Do you know whether these entries on the maps were made prior to December 31st, 1905, or since, in any particular case?

A. I have no means of identifying the date of those entries.

Q. Nor the date upon which these mains were abandoned or disused?

A. No means of identifying.

Mr. BURR: Other than the testimony given in that regard by Mr. Simpson?

The WITNESS: Yes.

Q. Into how fine divisions of an inch was the steel tape which you used divided?

A. Usually into tenths of an inch; sometimes 16ths.

4610 Q. Well, do you mean you used different tapes?

A. There were different tapes used at the outset. I don't know how it settled down at the end.

Q. You don't know how fine the divisions were?

A. I know they were no finer than a sixteenth; there would be no use in using finer than that.

Q. Were they all as fine as a sixteenth?

A. I think they were not. They were not at the outset, but the sixteenth was recommended.

Q. What were they at the outset, one-eighth inch?

A. One turned up that was one-eighth, but I objected to it, but I think it was replaced by a sixteenth, but I am not certain on that point.

Q. You say you followed around the crooked places, you mean the corners?

A. Yes.

Q. And do you understand that the company draws to a hair's breadth around a corner in indicating the location of its mains so as to get the exact and true lengths around corners?

A. Of course I cannot say. I know that they ought to.

Q. Well, you don't know whether they do?

A. No, of course not.

Q. And the difference in going round a corner, governed by the system of curves would be very substantial if it were aggregated for thirty or forty thousand corners, would it not?

A. No, because the maps passed many corners, the tape being laid across the folio wherever possible and the measurements being taken from this side clear out to the other side of the volume, and the tape bent in and held in, and where a curve occurred, being set on edge, and carried around that curve, not spread out straight, but carried around that curve so as to keep the tape right on top of the pipe. There were many measurements as much as thirty inches in length.

Q. But your assumption was that in indicating a turn of the corner of a street the company has laid out its mains to the

4611 fraction of an inch upon an exact scale as to distance from the corner of the curb?

A. No, I made no such assumption.

Q. Then if the pipe goes farther from the curb that it would be indicated on the map, it would be a longer pipe, would it not?

A. I studied that matter pretty carefully——

Q. Would it not?

A. Not necessarily, because what you would gain in one cross street in one direction you would lose in the other. All the pipes are brought to an intersection if possible, and if you come too close to the curb measuring that way, if you measure around the other way you would gain that difference. It would not make much difference.

Q. If the pipe did not stop right there, that reason would be asserted by you, but if the pipe stopped there it would not?

A. Come to a dead end?

Q. Yes.

A. Yes, of course, but there were very few comparatively.

Q. Do you know when these maps were made as compared with the actual laying of the pipe?

A. I do not.

Q. You don't know how long the entries were made in the map after mains were laid in any instance, do you?

A. Certainly not.

Q. Did you figure the scale on the maps with the City records to ascertain whether they scaled up with the City records of distances?

A. The appearance of the maps——

Q. Just answer that question, Professor. I am not asking about the appearance of the maps, but I am asking a distinct question.

A. We measured the scale——

Q. Measured the scale with a map?

A. With a steel tape.

Q. Did you measure the scale as to its own map to see whether the results coincided with the engineering records of the city as to distances?

4612 Mr. BURR: You mean for the purposes of comparison?

Q. For the purposes of verifying the exact distances of the map.

A. You mean did I verify the map itself as compared with a city map?

Q. Yes, and the scale as to its own map by comparison with any other map?

A. No, certainly I did not compare the maps with the city maps.

Q. Did you figure the width of the streets by the scale shown on the map and compare in any instances the widths so indicated with the city record as to the width of the streets?

A. I did not compare the maps with the city records in any way, shape or form.

Q. Were your measurements in a block say between Fifth and Sixth Avenues as transcribed upon your final conclusions here, simply the distance of that block as indicated on this map by your steel tape?

A. According to the scale given on the map.

Q. Did you make any allowance for flanges or balls where one pipe goes over another in joints?

A. Won't you make that a little clearer?

Q. Did you make any allowance for flanges of the main where one shuts over the other?

A. You mean the bell and spigot, don't you?

Q. Yes, I am not familiar with the technical names.

A. It did not have to be.

Q. Well, you did not make it, that is the question?

A. If I did I would make a blunder.

Q. Very well. You did not make that blunder then.

A. No, I did not.

Q. That is what I have been trying to discover. When you compared your mileage on City's Exhibit 89 with Mr. Simpson's mileage and state that there is a difference of 91.39 miles, did you take your mileage of active mains alone?

A. I don't know what Mr. Simpson's figures are.

4613 Q. No, I asked what you took——

A. In the case of the map measurements the mileage of active mains was taken, in the case of the map measurements.

Q. You deducted from Mr. Simpson's total of 822 miles, simply the active mains as you measured them on the map?

A. That is right.

Q. And as shown on City's Exhibit 91, did you not?

A. That is it.

Q. You did not include the mains which are disused either temporarily or otherwise, did you?

A. I did not.

Q. You excluded the abandoned mains?

A. Yes.

Q. Now how many miles of mains did you find disused but not abandoned?

A. Forty-three miles of mains were disused.

Q. 43.68?

A. 43.68.

Q. And if you add 43.68, that is the disused mains but not abandoned, to your active mains, how many miles will that make, all told?

A. It is all totaled in City's Exhibit 91.

Q. Well, it will make 775.17, will it not?

A. Yes.

Q. As against Mr. Simpson's mileage of 822?

A. I thought it was 795, finally.

Q. No, Mr. Simpson's mileage of mains including active mains and temporarily disused but not abandoned mains was 822 miles, you will remember. Now if you take your total of active mains plus the mains marked on the map disused but not the mains abandoned, you will get a total of about 775 miles, so that the difference between you and Mr. Simpson on the same basis would be the difference between 775 and 822, would it not, in round figures?

A. Apparently, yes.

Q. How many miles would that be, if you are quick at figures?

A. Forty-seven.

Q. Now 47 miles is not much more than five per cent. of
4614 the total of 882?

A. Just about 6 per cent.

Q. And you stated, did you not, heretofore that a difference of five per cent. between the records and the measurements on a map would not be an unexpected discrepancy?

A. I think it was a few per cent.

Q. Did you not say five per cent.?

A. I don't think I said five per cent.

Q. Do you say five per cent. now?

A. I should say about one per cent. now, after going into the matter very carefully, would be the extreme allowable error due to measurements.

Q. Did you not state in the presence of Mr. Simpson and others here some time ago when the question of examining these maps came up that an allowance of five per cent. for difference would not be excessive between the records and the measurements on a map?

A. I may have done so, but I have decidedly changed my opinion since and believe that one per cent., after investigating the thing, either way, would be the extreme allowable error.

Q. Did you not state to Mr. Simpson that you expected your measurement of the map would come within about five per cent. of the accurate result?

A. If I did so—and I do not know that I did so—I have decidedly changed my opinion since and believe our measurements to be correct within one per cent.

Q. Did you attempt in any way to verify the accuracy of the scale of the maps on which the mains were laid down and on which you took your measurements?

A. Every scale was carefully measured with a steel tape as stated for the purpose of finding out whether or not the shrinkage of the paper had made it different from what it was at the time that the
scale was drawn by the draughtsman on the map.

4615 Q. That is not the question. Did you attempt to verify the accuracy of the scale of the map on which the mains were laid down in any way?

A. As I stated before, I accepted the scale on the map.

Q. Would not the purposes of the Company be served as to graphical record of the mains laid whether the maps were exact to a fraction of an inch or not?

A. I think not, no; it would be bad engineering of the worst kind.

Q. You know the Company keeps an exact record, do you not, to which it refers when it has to repair or replace mains, showing exactly the distance from the curb and all the other measurements in detail?

A. It has so been stated to me.

Q. You have spoken of holders and some other apparatus which you stated were not now adequate for the requirements of the Company. Were they not good practice when they were put in many years ago, as the gas business then stood?

A. I fancy they were about the best in the country at that time.

Q. You spoke too about the $282,000 which the Company charged in depreciation for the year 1905, and by a reduction for mains which you thought should have been charged off in two previous years you got about $222,000 or 1.71 cents per thousand. Now you know, don't you, that that was not intended to include the depreciation due to apparatus becoming obsolete and the advance in the art, but that those contingencies were covered in the 10 cents contingent fund according to the testimony of Mr. Addicks. Do you recall that?

A. I beg your pardon, that 10 cents I never did understand the meaning of.

Q. You recall his testimony to that effect, don't you, whether you understood the point or not?

A. Yes.

4616 By Mr. BURR:

Q. That struck you as a novel proposition when you first heard it, did it?

A. It was great.

By Mr. MATHEWSON:

Q. You don't know that that ten cents a thousand was something advanced by Professor Bemis originally, as he testified, twenty years ago?

A. (Laughing.) That is great, that ten cents is.

By Mr. BURR:

Q. I omitted to ask you a question with regard to the mains. What did you find as the result of the examination of the map as to the duplication or triplication or quadruplication of mains in the street?

A. I have not had an opportunity to go over the charts or abstracts as thoroughly as I would like to have done.

Q. You have just received them?

A. I have just received them within the last hour or so, but during the progress of the work I noticed many instances of where there were a very large number of small mains along streets. If I remember rightly, I say this subject to correction, on six or eight blocks on Broadway there were five or six mains on each block, and I think on the cross streets such as Canal Street and Grand Street, there were in many cases as high as four mains on a single block. With a little time I could look it up.

Q. And you could give the Master the percentage of duplication or triplication of the mains as the result of that examination?

A. Yes.

Q. I wish you would do that over night, so we can have it tomorrow morning if possible.

A. Yes, but every one is worked out though, and I may not be able to get it so soon.

4617 Q. In view of the report of the accountants offered in evidence here, do you desire to modify or amplify or explain in any way any of the testimony heretofore given by you?

A. Referring to my cost of the manufacture of gas, the cash cost at 53.16 cents, I would say that I thought at the time that it was rather high, but as it was based wholly on expert knowledge and arranging a selection of figures without a knowledge of the books I presume it is not worth while to go over the work and change it now.

Q. In other words, you believe the careful examination made by the accountants more accurately states the actual cost than your statement upon the figures given as they appeared at that time, in this case?

Mr. MATHEWSON: I object to that question as the witness is incompetent and the evidence immaterial.

The MASTER: Well, Mr. Burr, I do not consider it of any great value. If you want to show any facts that have been brought to his notice by reason of the accountants, investigation which lead him to modify his former estimate of the cost of gas; I think that would be proper, but I do not think general questions like this are proper and I do not think the answers you get to them are of any great value.

Mr. BURR: I was only bearing in mind the fact that he was with the accountants while they were making up their accounting and so forth. I don't know whether it is very material.

The MASTER: I understand the purport of it is that he does not find anything in the testimony of the accountants that modifies his former testimony except to make him think that his estimate
4618 was too high if anything; that is the substance of it.

Mr. BURR: Yes. That is all I have to ask him now.

By Mr. MATHEWSON:

Q. Speaking of duplication of mains, it was mostly on the avenues and on Broadway where you found any duplication of mains beyond a line of main on each side of the street, wasn't it?

A. There and in addition in some of the crosstown streets down in the lower end of town.

Q. Particularly the large and important streets like Canal Street?

A. Yes, speaking generally, of course.

Q. Where there are railroad tracks and other obstructions of that kind largely?

A. That I have not gone into carefully enough—you are aware of the fact that I only succeeded in getting these data after tremendous efforts.

Q. The details of your measurements and computations which are included in the summaries City's Exhibits 89, 90 and 91, appear in these—how many are there of these?

A. There are ten volumes.

Q. These ten volumes?

A. Some 340 sheets.

Q. Being 340 sheets which you have before you?

A. Yes.

Mr. MATHEWSON: I will ask that these be marked for identification, and I assume that when copies are made we can all have access to them?

Mr. BURR: Yes. I am reserving the right to call the Doctor to testify still further in regard to the duplication when he has had a chance to go over these papers.

Papers marked City's Exhibit 92 to 101, inclusive, for identification.

4619 The MASTER: Have you anything further to-day, Mr. Burr?

Mr. BURR: Nothing further to-day.

HENRY H. EDGERTON, resumed, testified as follows:

By Mr. PAGE:

Q. Mr. Edgerton have you made an examination of the plant and works of the Consolidated Gas Company at 14th Street?

A. Yes, sir, such an examination as time would allow.

Q. By whom were you accompanied in this examination?

A. Doctor Marks and Mr. Lacombe.

Q. Was there any representative of the Gas Company with you?

A. There was a young man connected with the office who went around with us, by the name of Ross.

Q. With what were you furnished for the purpose of that examination?

A. We were furnished as I understood with Mr. Mayer's schedule and measurements of appar-tus.

Q. And did you accept that schedule as far as it gave details as correct?

A. I did. I may say that in a few instances I checked off measurements. We did not have time to check all those measurements, and I took all those as correct as put down in his list except perhaps a few I checked off, those that struck me as requiring it.

Q. Did you make any estimates yourself when you checked them off?

A. Only rough measurements. I did not carry along any other appliances than a small rule, a small measuring rule it was, chiefly used to measure thicknessess of iron in some places and that
4620 was about all. I did not carry it any further. I believe I measured sizes of retorts in some instances.

Q. Did you visit the office building of the works?

A. Yes, sir, I went through the office.

Q. Did you note the contents of the building?

A. I noted the contents of the office. They seemed to be all there. I did not attempt to value it in any other way than put a depreciation charge on account of the appearance of the furniture and some of the contents of the office.

Q. That is, you assumed the value as given by Mr. Mayer in his testimony to be correct as to the office furniture?

A. Yes, sir.

Q. Or what it would be new?

A. I thought that was as near as I could get it without taking considerable time and trouble to verify it.

Q. Was this furniture new furniture?

A. It did not have that appearance, no, sir.

Q. Did it have the appearance of having been in use for some time?

A. All that I noted seemed to have been in use for a long time.

Q. From your examination of that office furniture what would you say would be the proper depreciation taking into consideration the fact that the furniture is now in use and not giving what it would bring at a sale, I mean?

A. From my experience on selling furniture, I should not think it would bring very much. I put a depreciation of 40 per cent. on the whole.

Q. That is the actual depreciation from wear and tear, is it?

A. Well, no; I do not think it looks actually lower than that, to the extent of 40 per cent.; I wouldn't say that. It looks damaged like furniture that has been in use a long time, and I do not think it would sell for one-quarter the valuation scheduled.

Q. No, that is what I said. It was not what it would bring at a sale but what you considered it was worth, considering its
4621 depreciation from use and its condition; is that right?

Mr. MATHEWSON: I think you are leading a little, Senator. I do not think the witness said that.

A. The depreciation on furniture of such articles as are mentioned in this list, the physical depreciation, is rather hard to get at without taking into consideration what it would bring if you had to sell it.

Q. Well, you said that it would bring, if sold, about 25 per cent.?

A. I doubt that it would bring anything like 25 per cent. of its valuation if sold, from my experience in buying and selling second-hand things.

Q. But you place a depreciation of 40 per cent. upon this?

A. Yes, sir.

Q. Now, we will take the next item, the T. F. Rowland boiler, 60 by 16, 80 horse-power?

A. This boiler is put down in my list as 60 by 16 by 0.

Mr. MATHEWSON: 80 horse-power.

A. Yes, but taking the factor of 80 horse-power and without considering depreciation, take it at $1,800.

Q. That is that a boiler of 80 horse-power, T. F. Rowland boiler, would be worth new $1,800?

Mr. MATHEWSON: I object to the witness testifying as to values, and I do not think that he is competent to do so. I make the objection that he is not qualified.

Mr. PAGE: I was not here at the time Mr. Kirby examined the witness as to his qualifications, but he told me he had covered his qualifications as to valuation at that time. If he has not I will proceed to qualify him.

4622 The MASTER: Well, Mr. Mathewson, the witness, as I recall, testified to a very considerable experience in the gas

business and in the installation of gas plants, and it seems to me that he is qualified under the rules, as I remember it. I dare say that the Senator would not object, if you want to cross-examine Mr. Edgerton further now, to stop for that purpose. My recollection of the testimony is that he is qualified and I shall have to overrule your objection.

By Mr. MATHEWSON:

Q. How recently have you bought boilers in the City of New York of the T. F. Rowland type?

A. I have been pricing boilers and getting figures on boilers almost every day. I have made drawings of boilers.

Q. Have you bought any T. F. Rowland boilers lately?

A. The only T. F. Rowland boiler I know of especially, is when I met Mr. Allen many years ago. He had made what he called a Sampson-Fox, a corrugated boiler. He had brought the patents from England and commenced the construction in this country of the Sampson-Fox corrugated furnace. Now, I do not remember that this was a Sampson-Fox boiler, this 80 horse-power boiler; although in this work I have seen so many boilers and I have seen quite a number of Rowland's corrugated furnace boilers, which is really a marine boiler, that I could not say whether this was or not.

Q. Are you a manufacturer of gas apparatus?

A. No, sir, but I have drawn plans and started, as I said before, the Murray Manufacturing Company into the business of manufacturing.

Q. I understand that you have designed, but you have
4623 never been a manufacturer or seller of gas apparatus, have you?

A. I have contracted to sell it, yes.

Q. As a manufacturer?

A. Not as a manufacturer; no, sir.

Q. What do you mean by contracted to sell it?

A. Well, I buy it from various parties having the apparatus, and design it and contract and sell it to the companies, or have sold it to individuals at times.

Q. Is that a large part of your business now, selling gas apparatus?

A. It is the only part of it I have got, putting in gas apparatus.

Q. How much gas apparatus do you sell in a year?

A. I have not sold any, except buying it from parties manufacturing it. I have not sold any recently.

Q. Are you establishing any plant at present anywhere?

A. No, sir.

Mr. MATHEWSON: I submit the witness is not competent to testify as to the value of this apparatus in the City of New York.

By Mr. PAGE:

Q. Does the same class or type of gas apparatus change its value very materially from being bought in the City of New York than what it would be in any other city?

A. I don't think so. I have noted that the conditions here are

stated to be very peculiar, but I would not think it made any difference in the length of a two-foot rule or the weight of iron——

Q. Your impression is, if a machine was worth a certain sum in Philadelphia, and that same machine was worth a certain sum in Connecticut, and the manufacturer would charge the same sum for that machine in Boston, that the value in New York City would be the same?

4624 A. Yes, sir, I have bought a great deal of machinery in New York City at different times and I never noticed anything peculiar about it.

Q. Do you know of any manufacturer of gas machinery that manufactures it solely for the New York market?

A. Well, some few manufacturers seem to have the run of the New York market, but I don't think it is for any reasons of New York conditions other than——

Q. Other than the relations between the contractor and the Company?

Mr. MATHEWSON: No, Senator, you are going a little too far with these leading questions. Every question substantially you have asked of this witness has been leading. I do not think it is fair.

Mr. PAGE: I am sorry if I follow in the footsteps of Brother Mathewson. I apologize most abjectly, if that is the fact.

Mr. MATHEWSON: There is no relation between this Company and any contractor. They take bids for everything and endeavor to get the very lowest price from every contractor.

Q. How many years have you been in the gas business?

A. Forty-five years.

Q. And in that time have you erected gas plants?

A. I have erected probably one hundred gas plants during that time.

Mr. MATHEWSON: He testified fully as to the gas plants he had erected on direct, Senator, in various places.

Mr. PAGE: I know, but you have objected that he is not qualified. Now I am going into his qualifications.

Mr. MATHEWSON: I admit his qualifications on that sub-

4625 ject. I asked him on a further subject here. I do not care if you want to go all over it again.

Mr. PAGE: Do I understand you withdraw your objection about not being qualified?

Mr. MATHEWSON: No, I spoke of his testimony now and the testimony he has heretofore given. I do not think he is qualified.

Q. Have you been engaged in the manufacture of gas, and the running of gas companies?

A. I have not for quite a number of years been engaged in the manufacture of gas, but I have been thrown in close relation with a great number of gas companies and counseled them in regard to their operations and given my experience to them in regard to not only the use of apparatus but methods of keeping track of the business, books and so forth.

Q. Have you kept yourself informed as to the progress of the art

of the manufacture of gas, the changes that have been made from time to time?

A. I have.

Q. Have you had any other business within the last forty years except that connected with gas making?

A. Nothing whatever except the construction and operation and consultation in regard to the operation of gas works.

The MASTER: I will overrule your objection, Mr. Mathewson. Exception.

Q. Is there any boiler on the market at present known as the T. F. Rowland boiler?

A. I know of none except that Sampson Fox furnace. We have always understood he had the patents.

Q. Is T. F. Rowland manufacturing to-day?

A. I think the Continental Iron Works which he founded is running.

4626 Q. Well, you put your valuation on the boiler as an eighty horsepower boiler?

A. An ordinary eighty horsepower boiler. I did not consider that it was one of the corrugated boilers.

Q. And the value of $1,800 that you gave then was based upon a boiler of eighty horsepower?

A. Yes, sir.

Q. Of that general type, is that right?

A. That is correct.

Q. And did you make an examination of that boiler?

A. I examined all the boilers in a rather cursory manner, and I cannot disassociate now the particular examination of that boiler from a number of others, but I think I must have considered it somewhat depreciated in value.

Q. Well, did you figure any depreciation in value in that?

A. Yes; 25 per cent. We were not given the length of years of these boilers—in fact, not on any of the apparatus, so that the depreciation had to be visible; and, of course, in an inspection of the boilers for depreciation, so far as a thorough inspection goes, so far as a letting down and taking the hand holes and manholes off and going into it thoroughly, we did not possibly have time to do it and could not do it while they were in use.

Q. Did you ask the age of that boiler?

A. We asked the age of that apparatus from time to time of this young man, but he had only been there two years.

Q. And he could not inform you?

A. And he did not appear to know anything about it.

Q. What next did you examine? Did you examine this cast iron tank, 32 by 48, 4 feet 6, over boiler?

A. Yes. Well, I have seen those tanks in use before on top of buildings like that and I expressed the opinion that I did not believe it was in use at all or been used, for years before they went

4627 out of date; so Mr. Lacombe went up to it and found——

Mr. MATHEWSON: Let us hear what you did?

The MASTER: The question is what next did you examine? Did you examine this cast-iron tank?

A. Nothing further than to take his report of the tank. I agreed with that.

The MASTER: Then it is easy enough to say no.

The WITNESS: Well, I examined the stuff he scooped up from the tanks, and it never had water in it, and they were then engaged in pumping it in very vigorously.

Q. Did you see Mr. Lacombe go up to this tank?

A. Yes, I saw him go up the ladder, circle around over the top of the tank and collect specimens of the rust on the insides of the tank.

Q. And when he came down from the ladder did he show you what he had found?

A. He had his hand full of it and inside of his glove and pulled off his glove and showed it. I considered after that it was not necessary for me to go up and get a handful, and took his views on the subject.

Q. Is this construction one that is in use now, having a cast-iron tank over a boiler house?

A. No, I have not seen a tank of that kind in many years. I saw one in New Orleans in 1873 where they have a relatively mild climate and do not have to warm them up in the winter, and we converted it into a sprinkler for shower baths for the men. That is the only use we could think of for it.

Q. In 1873 you say that was, and was it then an obsolete type of manufacture?

A. Yes, it was of no account.

4628 Q. What value did you put upon that tank?

A. I put $2,500 on it.

Q. Upon what was that valuation based?

A. Well, that was based upon a rough calculation of the size of the tank, but mostly on the fact that it was not worth anything anyhow, except for junk.

Q. Well, does that $2,500 represent the value with depreciation off, or is that the value that you figure it would cost to reproduce the tank?

A. I have an idea that is with depreciation. I have not the full figures I made on the subject here.

Q. Then we will turn to the next item, which is the engine——

A. Engine room and fan wheel, I did not attempt to value; it is a thing that a man is apt to go to the manufacturer to get, and I did not have an opportunity to do that. The 50 horse-power engine, I put down at $1,500 .

Q. What is that valuation? Is that a valuation as depreciated, or is it the valuation of what it would cost to reproduce it?

A. Well, it is a small, slow-running engine, 40 horse-power, and a very old engine—old type of engine. I should not value it at any more than $30, a horse-power.

Q. Then is there any depreciation written off from that?

A. Yes, sir; 25 per cent.

By Mr. MATHEWSON:

Q. Do I understand that $1,500 is the valuation after depreciation is taken off, or before?

A. Before.

By Mr. PAGE:

Q. Two small boiler feed pumps; did you value those?

A. No, I did not set a value on those. The jet photometers I took with depreciation at $65.00. Those jet photometers are al-
4629 ways corroding and wearing out and requiring new drums, floats. I can buy them new for $130.

Q. That was then in the condition you found it, at $65.00?

A. Yes. They were in such bad shape I could not use them.

Q. What is the next?

A. The next is sink. I did not look at the sink.

Q. Now, what about that McKenzie exhauster?

A. The McKenzie exhauster, that is quite durable; I valued that at $700, allowing $224 for depreciation in an approximation to the apparent state of it. I took it that the exhauster had been operating there quite a long time. There is, however, no very important amount of depreciation on the exhauster, if they are kept in repair.

Q. I do not quite follow you. Is $700 the value with depreciation off?

A. Yes, sir.

Q. Then we will take the exhauster house; one No. 9 Root exhauster?

A. As before stated I put only a small depreciation on that, from the fact that they are very durable; it is 15 per cent. depreciation. I took the value of Mr. Mayer with 15 per cent. depreciation.

By Mr. MATHEWSON:

Q. Well, what would that leave?

By Mr. PAGE:

Q. Mr. Mayer's valuation was $1,980 and you would take off 15 per cent. for depreciation?

A. Yes.

Q. Have you figured that?

A. I have not figured out the depreciation items. I went from this plant to another and did not have an opportunity to do that; and I did not have time to prepare at all the depreciation figures. $1,980 is the price of a new one also, as I quoted a No. 10 to-day at $1,980.

4630 Q. The price was $1,980 and you took off 15 per cent. or $297 for depreciation?

A. Yes, sir.

Q. Which leaves $1,683?

A. Yes, sir.

Q. Now, the Huntoon governor?

A. I did not recognize that as the Huntoon governor that I was acquainted with, but I took the same depreciation off.

Q. And you took the $75 valuation?

A. From Mr. Mayer.

Mr. MATHEWSON: Mr. Mayer's valuation is $150, not $75.

The WITNESS: I do not think that was a Huntoon governor, as I understand it. I have used Huntoon governors but this does not appear, I think, to be one. The Huntoon governor on exhausters as I have seen them are merely to prevent rapid fluctuations in the exhaust of gas. There is a little pressure wheel made to revolve in oil so as to check any too sudden changes in admitting the steam. I understand the steam is governed in an exhauster pipe, a drum containing gas, and the pressure of gas is on that drum; it acts on the steam. If the exhauster is running too slow the steam would be turned on so rapidly that it will cause a jumping up and down of the exhausters, and Huntoon's invention consisted in putting this little retarding wheel or fan running in oil, in order to slacken or lessen the variation, in order to make it draw a straight line.

Q. Well, I understand that this was a different type of governor than you had usually seen as a Huntoon governor?

A. Yes. It was governor, but it had all the appearances of a regular steam governor, but it did not have the Huntoon attachment, so far as I could see.

Q. Well, as to its physical condition, I understand you
4631 took 15 per cent. off for depreciation?

A. Yes, sir. I did not attempt to value that particular governor.

Q. Then assuming the value was as given by Mr. Mayer at $150, you would give the value as $127.50, with depreciation, is that right?

A. Well, I don't know about that.

Q. Well, I made the calculation that 15 per cent. is $22.50 of that amount?

A. It is put down here at $75.00 and looking at the machine I thought $75.00 was enough for that thing. It is just a little gas drum about two feet in diameter and all that it operates is a steam valve. I did not question the value at $75.000 but I would question it at $150, I think.

Q. Now, take the No. 6 Root exhauster?

A. I have bought Huntoon governors.

Q. We are away from the Huntoon governor now. One No. 6 Root exhauster?

A. I took the valuation of Mr. Mayer and 15 per cent. depreciation. Those two Root exhausters seem to be doing all the work, and the McKenzie exhauster is a sort of—well an emergency exhauster, but I suppose they are working alternately.

Q. Well, you found it in such condition that you put a valuation of how much for physical depreciation?

A. Fifteen per cent.

Q. Another Huntoon governor: the testimony there would be the same as to the former one?

A. Yes, sir.

Q. It is the same type of governor?

A. Yes, sir.

By Mr. MATHEWSON:

Q. Are you sure that is the same type of governor? Did not this impress you as a Huntoon type of governor?

A. I saw so much machinery there, that is, several days ago, that I would not be positive, but I think it is the same governor. Of course in going through works at the rate we went it is rather difficult to retain a recollection of all, unless it is put down and some remark made about it in the margin. I put it down as the same.

4632

By Mr. PAGE:

Q. Then we will take the photometer, standard bar?

A. Well, that photometer I know would be worth about $500. I bought that type, but on examining it I found they had some extras in it. They had a new standard of light, Pentane standard; $75.00; so the depreciation on that was very small and I put it the same, $650. They also had in connection with an extra meter—there was a duplicate meter, which is new; worth $100.

Q. And with the extra meter you would say $650 was a fair valuation, would you?

A. Yes, I should think that that covered all the depreciation on account of these extra parts.

Q. What is the next?

A. The next, machine shops. I checked off all the apparatus there and found everything in apparent working order and being used; however, there is depreciation on all that class of apparatus, tools, and I assessed 25 per cent. depreciation throughout the machine shop and the blacksmith shop.

By Mr. MATHEWSON:

Q. The new value you would put as Mr. Mayer did and take off 25 per cent. depreciation?

A. Yes.

Q. The same in the smith shop—take his figures with the 25 per cent. off?

A. I didn't have a chance to value all those different small items there and price them as new, but I am perfectly satisfied that there was that amount new there in value, in the shop, and also in the blacksmith shop. The material there new would certainly have cost all it is valued at.

4633

By Mr. PAGE:

Q. Now, take the condenser; two condensers, No. 2 rectangular tubing, cast iron tubes, 44 by 15, by 6 feet 2 inches, 648 tubes, 4 inches diameter, eleven feet long, connections 30 inches; what value do you place on that?

A. I did not place a value on that condenser. I wanted to make a more thorough inspection and have some measurements made as a guide to pricing it; and therefore as I did not allow any measurements except what I could make with my little rule, or rather did

not allow any assistants to measure, I was not able to calculate that condenser.

Q. Did you ask to be allowed to have an assistant measure-?

A. Yes. Young Mr. Ross not only said he was instructed to not allow anything of the kind but he interned a boy of fourteen along with me—I took him along to keep him out of mischief, and he considered him there for some obnoxious purpose and kept him in the exhauster house while we were making the examination.

Q. Did you have any assistants with you to make these measures or this particular measure?

A. Yes; I had two young men came down equipped with measuring apparatus to make measurements and Mr. Ross telephoned in regard to it and told us it would not be allowed. I could not make a calculation on an apparatus like that off-hand.

Mr. MATHEWSON: The only suggestion that has come to me, Senator, was that Mr. Edgerton wanted to take along some men to make notes for him.

Mr. PAGE: That was at 42d Street.

4634 Mr. MATHEWSON: Oh, well, that was the first I heard and the first I have heard.

The WITNESS: We made measurements at 42d Street without any question and trouble, but I wanted assistants to measure as it hampered me so much to make them individually and it kept me so slow and long over the apparatus and I wanted to get around in time and had very little time and I wanted some assistants to do the measuring and then turn the figures over to me.

Mr. MATHEWSON: Well, you understand that subordinates are bound by general instructions that sometimes are unwise.

By Mr. PAGE:

Q. Well, are there such dimensions given here that you could make a valuation? If you can, you can make it during recess and supply it?

A. There are quite a number of dimensions given here and I could make an approximate valuation on them. In fact I don't see anything out of the way in that calculation, considering the wrought iron tubes and all in this condenser. I took that at a much higher figure than I did the cast-iron work alone. On the other hand I should assess a larger depreciation on any wrought iron in contact with gas than I would cast-iron, on account of its liability to corrosion.

By Mr. MATHEWSON:

Q. Then I understand the substance of it is that you think Mr. Mayer's figures are fair for reproduction, after you take——

A. Taking the weight at 54,000 pounds, as put down here, I do not think those are put out of the way for a multi-tubular condenser which this is. It seems it is not a cast-iron condenser;

4635 it has only a cast-iron base and sides.

By Mr. PAGE:

Q. As I read it, it has cast-iron tubes?
A. I supposed it was wrought iron tubes.

By Mr. MATHEWSON:

Q. Do you say if it had cast-iron tubes the depreciation would be less?

A. Yes; less. The wording here is misleading in regard to the condenser, multi-tubular or any other kind. It is two rectangular, tubular, cast-iron, 648 tubes, 4 inches diameter, 11 feet long, connections 30 inches. I took it at first that this was a cast-iron arrangement and come to look at it more closely I considered it was a regular multi-tubular condenser which is generally made of wrought iron tubes.

By Mr. PAGE:

Q. Well, we will pass that and you may be ready with that tomorrow. What is the next valuation that you put down?

A. The next is a machine shop shed containing a variety of drills, planers, lathes and various machines, which seemed to me new to be fully worth $1,800, but I put on that 25 per cent. depreciation on the tools.

Q. Now the large purifier house?

A. That was part of the apparatus that I wanted to remeasure more particularly. I made a rough calculation according to the dimensions they gave me, 2,550 boxes which would bring out $20,400 as to boxes and cover simply; and as there were only two cranes for hoisting it seemed to me as excessive, the valuation put on by Mr. Mayer; and I desired to remeasure that and go
4636 into it more fully. That is one of the points I wanted to remeasure.

By Mr. MATHEWSON:

Q. Do you wish to put any valuation on it now?

A. I could not put any reliable valuation on that the way it stands, without a remeasurement.

By Mr. PAGE:

Q. What dimensions do you need?

A. The thickness of the iron, the amount of planing surface, how many flanges and plain surfaces there are, and I could not get at the depth of boxes either; they were full of material; and the light they furnished to go down into the cellar would not enable me to go measure the depth of boxes; they seemed to have light—electric by the way—that showed so dimly that you could not see—and I determined to remeasure it, and had the young man come down for that purpose. I will say this, however, that these purifiers are shallow lime purifier boxes, and they are not of a modern type or oxide of iron.

Q. What is the difference in value between lime construction and oxide of iron purifier boxes?

A. The oxide of iron purifier boxes are generally made deeper, you can put more material in them and concentrate your purification into a smaller surface.

Q. That is, you can purify more, you mean, by them? You can purify more gas?

A. Yes, use more purifying material by deep layers. You cannot use deep layers of lime because it puts a heavy back pressure upon the gas, but gas travels through the iron mass with much greater facility and therefore you can make it deeper and hold more, and these boxes would be of slightly more costly operation and more expensive than for iron purification. In other words, with half the money I could construct an iron purification set.

4637 & 4638

By Mr. MATHEWSON:

Q. But we want the valuation of this particular apparatus?

A. That is what I was trying to get at.

By Mr. PAGE:

Q. In order to get a valuation on the reproduction of this particular apparatus, you would have to have the additional item of dimensions, the thickness of the iron, and the planed surfaces?

A. The thickness of the iron, the number of planed surfaces and also I should not provide for a double riveted cover of the purifying box. This was a very expensive way to put a box together, double riveted, like a boiler, as if to stand an enormous pressure. I do not think I ever saw a double-riveted purifying cover before; very fanciful. There are other dimensions given here.

At 5:18 P. M. adjourned to December 6, 1906, at 10:30 A. M.

Last Exhibits:

Complainant's, 257.
State's, ZZ.
City's, 101.

4639 Circuit Court of the United States, Southern District of New York.

CONSOLIDATED GAS COMPANY OF NEW YORK, Complainant,

vs.

JULIUS M. MAYER, as Attorney General of the State of New York; WILLIAM TRAVERS JEROME, as District Attorney of New York County; FREDERICK E. GUNNISON, JOHN C. DAVIES, and LUCIAN L. SHEDDEN, Constituting the New York State Commission of Gas and Electricity, and THE CITY OF NEW YORK, Defendants.

Before Arthur H. Masten, Special Master.

NEW YORK CITY, *December* 6, 1906.

Met pursuant to adjournment.

Present: The Master, Mr. Mathewson, Mr. Burr, Mr. Page, Mr. Kirby.

4640 HENRY H. EDGERTON resumes the stand and further testifies:

Direct examination (continued) by Mr. PAGE:

Q. Did you look at the apparatus in the small purifying house?

A. Yes, sir.

Q. One set of four boxes, 16 by 25 by 3 feet 2, 20-inch center seal, and two hydraulic cranes on track?

A. $13,464.

Q. Do you include in that valuation the supports as specified——

A. Yes, sir; everything that is specified here. I was not able to measure it and I include all the data given in this description.

Q. Was there any figure off that for depreciation?

A. No, I have not taken anything off that for depreciation. That is the cost.

Q. Well, would you take anything off?

A. I think in regard to the purifiers a percentage ought to be taken off on account of being lime purifiers instead of oxide.

Q. Well, as to the physical condition of the purifier, would you take anything off from the price that you have given, for depreciation?

A. They are old purifiers. I suppose you could very well deduct 10 per cent. for physical deterioration. There is nothing that particularly wears out about a purifying box except what we call the trays.

Q. Then 10 per cent. you would say for depreciation, would you?

A. Yes; I think that would be a fair figure.

Q. Now, proceed to the meter house.

A. I have no prices on those meters. I have been trying to get them, but I have not been able to get prices on that size meter.

Q. What do you say as to the age of those meters?

A. Well, the cases seem to be old cases, with new drums, I
4641 think. I think those cases were cast by Gratz, if I remember rightly; that would make them thirty years old, at least. The apartments and drums are a more recent construction, and I suppose the drums have been renewed. I could not learn anything from the young man in regard to them.

Q. Then if in Mr. Rowland's schedule there would appear a meter of this size, of meters of this size—two 16-inch diameter by 13, you would think that it was the case of this meter with new drums, the drums having been renewed?

A. That is what I take it. I should make a depreciation of 25 per cent. on five years' use on the drums. That would be allowing as long a lifetime for the drum as I would find they would probably last.

Q. Well, can you express that in figures at all?

A. No, I have not been able to divide that at present, the case and drum, because I have not got the data for it.

Q. What about the No. 4 gas meter?

A. That is what is known as a proportional meter. I do not think that that meter is in use, but I have no price on that. The next is four King's pressure gauges.

Q. Yes, that is a small item; you may give it.

A. Well, those I have put at $12.00 for an ordinary arch gauge. A fine arch gauge would cost double that, according to how it is made.

Q. Did you notice how this was made?

A. No, I did not. The arch gauges are of the same appearance.

Q. Well, pass it. Now, one locomotive boiler and tools given here as 35 horse-power, 5 feet diameter shell by 14 feet 7, sixty 3-inch tubes. What did you value that at?

A. Rating it by the horse-power, $1,050.

Q. Now are the dimensions as given correct for a 35 horse-
4642 power boiler?

A. No, it seems the dimensions would indicate a large horse-power boiler. I put that by the dimensions there as $1,400.

Q. That is, if the dimensions as given were not correct the boiler would be worth $1,400; if the horse power given is correct it would be worth $1,050, is that right?

A. Yes, sir.

Q. What do you value the contents of the valve house at; two 9-inch American meter gauges, one large American meter gauge, one 8-inch recording gauge, and one pressure indicator?

A. $89.

By Mr. MATHEWSON:

Q. $89 for the whole four?

A. Yes. I claim that the pressure gauge $50, and the ordinary arch gauge at $24, and the large gauge $20; and the pressure indicator as shown there is nothing but a little clicking telegraph relay or magnet, and cost about $5.00. There are some wires passing in there that I don't know whether they are calculated in or not. I do

not know what the length of them is, but what is visible of it is a signal key and a magnet.

Q. And what you valued was——

A. Simply the signal key and magnet. The wires I do not know about. The kind it is I did not know, I therefore could not include anything for the wiring.

Q. Now, we will take the retort house. Four coal stacks of 30 benches each, 15 back to back, 6 retorts to bench, direct fire——

A. I gave the value of those stacks at $42,500 each; $160,000 for the four. And $36,500 for the so-called regenerative benches.

Q. What do you mean? That is the one below, one coal gas stack of 24 benches, isn't it, 12 back to back, six retorts to bench?

A. (No answer.)

4643 By Mr. MATHEWSON:

Q. How much was that?

A. $36,500. I deduct from that 14 dead benches, let down for renewals, at $450; $6,300, and allowing the average lifetime of three years for the 120 benches, I deduct one-third as the current depreciation on those, or $18,000, leaving $182,000.00 net.

Q. What would that be for each one, the $160,000 for instance? Did you separate those on that item, four coal stacks?

A. Do you mean by the separate bench, each bench?

Q. What did you take off each one for depreciation?

A. I took the depreciation figure as the number of benches that were dead.

Q. In money?

A. $6,300.

Q. That would make how much for the $160,000?

A. Off the $196,500.

By Mr. PAGE:

Q. What he wants to know is how you would divide that, how much of that $6,300?

A. Well, the dead benches are let down for renewals of the small type; that is, from $160,000 it would leave $153,700.

By Mr. MATHEWSON:

Q. And the other would stay as it is?

A. The others are not in use. Renew all except the mouthpieces on four or five of the benches.

Q. They were set in 1906, weren't they?

A. They looked like new work.

By Mr. PAGE:

Q. Which one of these benches was set in 1906?

A. The stacks, 24 benches, back to back.

Q. What do you mean when you say the "so-called regenerative"—half depth?

A. There was half depth setting, not properly regenerative
4644 benches, as I understand it.

Q. Well, are they what is technically known as half depth regenerative benches?

A. They are not regenerative benches at all in the sense that the air is heated by alternating between hot flues and then changing the current of air to those that have become hot. The regenerative bench is one in which the air is heated before it goes to burn the gases.

Q. How are the retorts placed in these benches, the six retorts in relation to each other?

A. In the new benches they are right over each other, leaving a wide space between the retorts, which is quite an unfavorable construction for getting the best results out of coke fire. I saw this construction adopted away back in 1874 when I built the New Orleans plant. Those I drew in—they call it drawing the retorts together as they go up, not one over the other, and the results from those benches are very much superior to larger retorts set one directly over the other.

Q. And in a modern construction that had been used, for how many years has the building of the retorts so that one will not be directly over the other or drawing them in, as you expressed, been done?

A. I saw them in use in the old country in 1862, and I first adopted it in this country in New Orleans in 1873. I think I was the first one to adopt that construction.

Q. And is that construction now in very general use?

A. It is the construction that gives results.

Q. That is not quite an answer to the question. The question was whether that construction was in general use now; in New York, I mean.

A. Well, I see a great many retort houses built with retorts built directly one over the other, but I think the majority fill in
4645 that middle space with retorts, either by setting eight retorts or seven retorts.

Q. Now, take the four stacks of 30 benches each; of what construction is that?

A. In those benches the retorts are drawn in so that if they were of ample size they would make a very good direct fire bench; but the retorts are small and short compared with the best construction; in fact, they are very old; they were old when they were built, in construction or method.

Q. I believe this retort house, the testimony is, was built in 1853. Now do you mean——

Mr. PAGE: Is that right, Mr. Mathewson?

Mr. MATHEWSON: It was reset in 1906, the one stack of 24 benches, that is the date I find note of.

Q. When you say it was old at the time it was built, did it date back to that time, or at the time of consolidation?

A. At the time of the construction of the New Orleans plant, I was acquainted with Mr. Farmer's construction at that time and saw

his benches and had data in regard to their workings. I refer to about the period of 1874. His setting was also employed in Mobile, Ala., where I was consulting engineer.

Q. Is this type of bench what is known as the Farmer type?

A. No, this is modified. Mr. Farmer did not, so far as I know, adopt this present arrangement of retorts, drawing them in.

Q. How is it as to the size of the retorts?

A. The retorts are very small, 12 by 20 retorts, 8 feet 6 inches in length.

Q. If you were rebuilding this plant, would you rebuild these particular benches in the style of construction they are?

4646 Mr. MATHEWSON: Objected to as immaterial and irrelevant.

Mr. PAGE: Well, you are asking to have them reproduced, reproduction values.

Mr. MATHEWSON: Well, this particular plant is what we are claiming on, not some other plant.

The MASTER: Well, the same thing is got at in another way I suppose by showing, as has been testified in several instances here, that the devices were antiquated and not modern. I think the question in that form is objectionable, and I will sustain the objection, but I do not think it is important so far as you are concerned.

Mr. PAGE: Exception.

A. I would not think of constructing those benches at present.

Q. Is this type of bench an economical type in producing results?

A. I notice by the accounts that this type of bench produces about 34,000 feet per day per bench. If I remember rightly, I noticed in the accounts it is known as retorts in action. That would exclude such retorts as were lying off to burn carbon. My recollection is that the New Orleans retorts averaged 56,000 feet daily for the year. Those benches were built in 1873 or 1874.

Q. And that was a direct fire bench, was it?

A. Direct fire bench. The small return from the bench also entails a relatively small return per man employed in the retort house.

Q. And as compared with the new construction of regenerative benches, how is it in regard to fuel?

A. My recollection is that these benches consume nearly half the coke produced.

Q. Nearly half the coke produced from those benches do
4647 you mean?

A. Yes, sir, and a good bench would consume 20 to 25 per cent. of the coke produced, or less than half the coke consumed in these benches.

Q. What is the next you have got?

A. The tracks running the length of the building and outside 20 feet for charging and drawing machines.

Mr. MATHEWSON: Where is that, in the yard?

The WITNESS: Retort house.

Mr. PAGE: After the stoking and drawing machines and turntable there are the tracks.

Q. Take up these tracks, six lines of tracks running the length of the building and outside 20 feet, drawing and charging machines, 70-pound rails on 6 by 6 cross-ties, these on 6 by 8 stringers. What value do you place upon that?

A. $4,830.

Q. Without depreciation?

A. Without depreciation.

Q. If constructed in the manner here described with cross-ties running clear across those widely spreading tracks and placed on stringers, I find the timber is by far the larger proportion of the cost, amounting to $3,076. That would be exposed to a large depreciation, and I do not suppose you could allow more than ten years lifetime to that wood.

Q. Well, what depreciation, then, do you say you would give to the $4,850?

A. I would give 10 per cent. for a year.

Mr. MATHEWSON: What would that be in dollars?

A. That would be $307 a year. I do not know how long that timber has been in there. I made inquiry, but I could not ascertain.

4648 Q. Are these timbers exposed or visible?

A. They are not exposed, not visible; they are buried, but taking the position——

Q. Where were they, beneath the floor?

A. Beneath the floor of the retort house. But I have noted in trolley roads and other places where the timber is buried and supposed to be durable it still rots out.

Q. I understand then that you are unable to put a depreciation further than it would be at the rate of 10 per cent. per year on the timber portion?

A. On the timber portion.

Q. What about rails?

A. Rails that weight and apparatus of that weight running over it would be very slight. I do not suppose it would amount practically to anything.

Q. Take up the coke track, four lines of coke track, running the length of the retort house, with 3½-inch rails, 35 pounds?

A. I have not figured that out. I see I have overlooked that.

Q. Well, if you have not go- it, pass on to the next thing that you have.

A. Two coke dumping inclines 32 feet long by 16 feet high, 3-foot gauge. I put that at $500.

Q. Apiece or for the two?

A. $500 apiece.

Q. That would be $1,000 for the two?

A. Yes.

Q. Did you figure any depreciation on that?

A. No, I did not. I did not know the time they had been in use. There was no visible depreciation that I could notice.

Q. With the amount of coke that they have in the works, what is the effect of this coke dumping incline 16 feet high?

A. I think that dumping the coke that high is detrimental; it

adds to the percentage of breeze. I saw evidences in the yard of a very large percentage of breeze in the coke, much larger than I had been used to seeing, and I have no doubt much of it is due
4649 to dumping from that height to the ground.

Q. Did you value those engines?

A. Two 7-horse-power engines $400.

Q. Is that with depreciation or without?

A. Without depreciation; 20 per cent.

Mr. MATHEWSON: Two engines, how much?

The WITNESS: $400.

Mr. MATHEWSON: Each?

The WITNESS: No, for the two.

Q. What depreciation did you put upon that?

A. 20 per cent.

Q. $80 that would be?

A. Yes.

Q. And you would value them at $320?

A. Yes, sir.

Q. Did you value the dumping cars?

A. No, I did not value those dumping cars.

Q. Proceed to the next item.

A. The next item, two coke dumping appliances, 20 feet long 40 feet high, I did not see them.

Q. Proceed to the next thing you did see and value. Tower scrubbers, is that it?

A. Yes.

Q. Tower scrubbers, 20 feet in diameter by 84 feet 2 inches over all, capacity of each 1,000,000 cubic feet per 24 hours.

A. I valued that by the weight of the scrubbers given here, 603,000 pounds at an average of six cents.

Mr. MATHEWSON: Weight given where, Mr. Edgerton?

The WITNESS: On this inventory.

Mr. MATHEWSON: Do you mean the weight given by the company or put in by somebody else?

4650 Mr. PAGE: We do not know where it came from. The weight is 603,262 pounds.

The WITNESS: I could not make the calculation of those scrubbers' weight without a good many more measurements than I have got here, but I did not think that weight was out of the way.

Q. What valuation did you put on them?

A. $36,195.

Q. Did you include in that the water tank surmounting the tower?

A. I took this to be the total weight of the whole apparatus.

Q. What depreciation did you place upon that?

A. As far as appearances went there was very little physical depreciation. But the depreciation from antequation or falling out of use would be considerable for the reason that while those tower scrubbers take out ammonia, they are not as advantageous as the more recent rotary washer scrubbers.

Q. In what way are they not?

A. The washer scrubbers use the liquor over and over again and

gets it in a more concentrated state and they are generally superseding the coke tower scrubbers.

Q. What about the ammoniacal liquor that is produced from a tower scrubber or from these tower scrubbers if you noticed it?

A. By the use of the tower scrubber by water and you can take the ammonia out of the gas but not in such good shape to save it. The action of the tower scrubber is more to use the ammonia as a purifier than it is to get the concentrated ammoniacal liquor, whereas the washer scrubber would give a better and more concentrated liquor.

Q. Commercially then, the ammoniacal liquor from the tower scrubber is not as valuable as the ammoniacal liquor from the rotary scrubber?

A. No. It is true the ammoniacal liquor can be pumped
4651 over and over again in a tower scrubber and there is the attempt made to concentrate it in that way, but it is not as successful as the other.

Q. Did you make any examination of the ammoniacal liquor in these particular tower scrubbers?

A. I just made a—

Q. I do not mean an analysis.

A. I just made an ordinary test by the nose and tasting it; I did not make any determination at all.

Q. Are these tower scrubbers in use in modern plants to-day or plants that are built within the last few years?

A. I believe I introduced the tower scrubber in 1873 and 1874 and it was considered an improvement at that day, but I do not think they stand any chance of competing with the rotary scrubber.

Q. That does not exactly answer the question. I want to know whether they have passed out of use or are they still used in building plants, is what I meant by my question?

A. I do not remember seeing any recent building with tower scrubbers. The tower coke scrubber is also used for a tar scrubber for scrubbing tar, but it does not require any such capacity as it does for ammonia water.

Q. Well, what did you say the depreciation was?

A. Fifty per cent.

Mr. MATHEWSON: On these scrubbers?

Q. That would bring——

A. The day I was there one scrubber was out of use.

By Mr. MATHEWSON:

Q. I thought you said a few minutes ago you thought they were in good condition?

A. I said the depreciation was on account of antequation.

4652 By Mr. PAGE:

Q. Well, 50 per cent. will be $18,097.50, would it not?

A. $18,097.50, yes, sir.

Q. Did you value the foundation on which these scrubbers rest?

A. Yes.

Q. Foundations four inches thick, 34 by 64——

A. Four feet thick.

Q. No, 34 by 64, supported on 300 *piles*, brick circular wall to top of concrete, 6 feet of concrete to the ground level.

A. I made as exact a computation as the description would allow and arrived at $4,582.

Q. Any depreciation on it?

A. No, I did not assess any depreciation on it.

Q. We have an Isbell Porter Standard Scrubber?

A. I have not the price on that.

Q. And you never bought one of the Isbell Porter scrubbers?

A. No, I have priced them but I have forgotten the price of them.

Q. Assuming the price that is given by Mr. Mayer to be correct, which I presume is about $8,000—is it not?

Mr. MATHEWSON: Isbell Porter, $6,860.

Mr. PAGE: Without depreciation?

Mr. MATHEWSON: Yes, and 2 per cent. off for depreciation $6,723. That was his net.

Q. Assuming the price given by Mr. Mayer of $6,860 to be correct, don't you calculate anything for depreciation on account of the age and condition of this scrubber?

A. And on the time and everything in connection with ammonia water or with which ammonia water has a contact, there is a percentage of depreciation.

Q. I think the testimony is that this was installed in 1892?

A. I understood it had that age of 14 years. I put 20 per cent. for 14 years.

4653 Mr. MATHEWSON: It does not appear whether any repairs or replacements had been made since that time though.

The WITNESS: Well, what corroding goes on is very slight. What goes on is internal and you could not see it on the outside, that is true.

Q. That would be $1,372 off for depreciation, would it?

A. $1,372. I did not question the price, so I presume it was obtained from the party.

Q. Well, we are assuming that. Mr. Mayer, as I understand, did obtain it. What is the next thing that you valued?

A. Air condenser.

Q. What value did you place on that?

A. $15,067.

Q. Was that with or without depreciation?

A. That is without. I should not—it is all cast iron pipes and cast iron throughout and coated with tar, probably next to the hydraulic mains, and the depreciation on that, physically, would be very slight.

Q. Take the next thing that you valued?

A. This gas engine house and arrangement I did not value.

Q. Take the next that you did value?

A. Boiler and engine house with 55 horse-power vertical boiler.

Q. 55 horse-power vertical boiler?

A. Yes.

Q. What is the value of that?

A. I allowed $1,100 with $600 depreciation, leaving $500 as the value of that boiler.

Q. What did you value it new, did you say?

A. $1,100.

Q. And with depreciation $500?

A. $600.

Q. The depreciation was $600 but the value with depreciation was $500?

A. Yes.

Q. Now, the 50 horse-power engine?

A. I valued that at $1,000. That is an old-fashioned oscillating engine and there is about 25 per cent. depreciation, $250, leaving $750.

4654 Q. What is the next, boiler house and well, one vertical boiler?

A. One vertical boiler 13 horse-power, $250. I based that on 13 horse-power; depreciation 25 per cent.

Mr. MATHEWSON: I do not understand whether the $250 is after he has taken out the depreciation or before.

The WITNESS: No, it is before.

Q. That would be $62.50 for depreciation, leaving $187.50?

A. Yes, $62.50.

Q. Proceed?

A. The well house pump I did not value. It was for pumping up into——

Q. As long as you did not value it, pass to the next thing that you did, was it the boiler in the boiler house?

A. Boiler in the boiler house, 20 horse-power, $360. Stack $67.50 depreciation $21, $46.50. The clock I did not see or the pressure gauge. The valve house——

Q. Was there any depreciation on that boiler and stack?

Mr. MATHEWSON: He has given the stack depreciation $21, net $46.50.

The WITNESS: I think the boiler will last forever the way it is now. I do not think it has been used.

Q. Well, do you mean by that it is an abandoned boiler?

A. I think so, yes, sir.

Q. Then would you say that an abandoned boiler was just as good as a new boiler?

Mr. MATHEWSON: If it had never been used it would be, would it not? He says he does not think it had ever been used?

The WITNESS: This was in the well house and had a banked fire on and when we went back to the works, they were pump-

4655 ing from that house into the rectangular tank as described, and it connects with the tank, but I do not think that tank was used for any purpose, no, sir.

Q. This particular boiler is connected with the iron tanks that cover the roof of the boiler house, is that it?

A. Yes, they showed us the connections on the map.

Q. Well, do you value this at—pass on to the next.

A. I don't know how I could put a depreciation on.

Mr. MATHEWSON: You might on the theory that we might use it some time and it will deteriorate.

The WITNESS: I do not believe that thing is in use.

Q. Proceed. What is the next?

A. Valve house, one 8-inch Bristol recording gauge; I should think that is worth $50. And the large gauge $24, $74.

Q. Is there any depreciation on this?

A. I would have to know the length of time they have been in use. There is quite a good deal of depreciation, but I have not calculated it.

Q. Proceed to the next.

A. Exhauster house, $2,550 for the exhauster and engine. I got that from the building.

Mr. MATHEWSON: One McKenzie exhauster is that it?

Q. Do you mean this New York Safety 14 by 16 engine direct connection to No. 10½ Root exhauster 180 R. P. M., what is that?

A. Revolutions per minute.

Q. That is how much?

A. $2,550. I do not understand whether this additional Root Exhauster No. 10 was the one spoken of or an additional exhauster. This is what I noted as the pumping house, and here called
4656 the exhauster house. They have two exhausters in there, or three in fact.

Q. Well, there are three here. What did you value at $2,550, is the point we are after?

A. The engine and the exhauster.

Mr. MATHEWSON: The Root exhauster?

The WITNESS: The Root exhauster. That was pumping 2½ pounds pressure. I suppose that is the power pumps.

Q. What depreciation did you place upon that, if any?

A. Well, that looked all in fine order, everything in that building, and I did not put any depreciation on it, without knowing the length of time it had been in use.

Q. What about that additional 10½ Root scrubber?

A. That is correct, $1,600. Also the McKenzie exhauster, $3,000 is correct.

Q. $3,050 is the way it is given here.

Mr. MATHEWSON: Do I understand he agreed with the $3,050 or that he made a separate valuation?

Mr. PAGE: I do not understand it that way, but that he agreed with the $3,000 given here.

Mr. MATHEWSON: It is given here as $3,050.

The WITNESS: That is right, it was an error in putting it down.

Q. What next did you value?

A. Exhauster house contents, 30-inch valve standards, running through the floor, I think that is correct, I think that is a moderate estimate.

Mr. MATHEWSON: $525?

The WITNESS: Yes, sir. The photometer complete with addition

of Pentane standard lamps and meter $650. There would
4657 be $500 and $75 and the extra meter would be $100.

Mr. MATHEWSON: $650 is right then, is it?

The WITNESS: I think that is a little bit low. Those meters are worth $100.

Q. Then we will say $675?

A. $675.

Q. Is there any depreciation to be taken off the contents of this exhauster house?

A. No, that looked as far as visible to be in perfect condition and no depreciation could be assessed unless one knew the age.

Q. Very well then. Proceed to the boiler house. Two 50 horsepower corrugated horizontal boilers and stacks, each 3-inch tubes, 14 feet long, diameter of shell 5 feet 6 inches by 16 feet long.

A. These are of the type that I spoke of, the Sampson-Fox type, and it is a more expensive boiler. I put that down at $2,000 for the two, $1,000 each. That is the value with depreciation, for they had all the appearance of having been in use quite a time.

Q. $2,000 is the value with depreciation? Is that right?

A. Yes, sir, that is right.

Mr. MATHEWSON: Have you any objection to his stating in this connection what it is without depreciation?

The WITNESS: I allowed a large amount for those boilers, $30 per horsepower.

Q. That would be $3,000?

A. That would be $3,000. $1,500 apiece. They are marine boilers really.

Q. Did you value the stack?

A. I did not. That stack appears to be new.

Q. Proceed with the next thing that you have. Tanks in the yard, ammonia tanks?

4658 A. No, I could not make any calculation on that for they are not measurable.

Q. Proceed to the next?

A. A 50-horsepower, two-cylinder, oscillating engine, I put at $1,000, and for the boiler $700, $1,700; depreciation 60 per cent., $1,000.

Q. $1,700 for the two?

A. Yes.

Mr. MATHEWSON: That is 50 horsepower, oscillating engine with cast iron walk, 8 by 6 inches by 6 feet 5 inches?

The WITNESS: I am speaking of the engine.

Q. You valued the engine at how much?

A. $1,000 and the boiler at $700, making $1,700, and I took $1,000 off for depreciation, $700.

Q. What was the next thing that you valued there? That is all of the apparatus, is it not, except the tanks and holders. You have not valued those yet?

A. I have obtained bids on holders, but they did not give the bids for exactly this size, therefore I will have to——

Q. You made an examination of the tanks and holders at this plant, did you?

A. Yes.

Q. What did you find in regard to the holders?

A. Those small holders are practically out of use. They are lying dead in the yard. They were raised up during the time we were examining the plant and repainted with tar, but otherwise they were practically dead holders lying there without being used.

Q. Which holders were they that were in this dead condition? Identify them in the plant.

A. There were six holders in the yard between 14th and 15th Streets, I think it was, and Avenue D, or facing the office building; in fact in the same yard in which the purifier house stands.

Q. Was there anything about the holders from which you
4659 could tell whether they had been in use or not?

A. Well four of the holders were grounded when I first went there and had been on the blocks. No. 1 holder I shall call it, the one farthest from Avenue D was raised up to about half the contents of the inner section and there was a band of 8 inches of rust and dirty water on the top or on the sides rather, indicating that it had been down, and down for some time; in fact these holders were too small to be of any use——

Q. Did you observe that on any of the others?

A. Yes.

Q. What one?

A. On all of them that were raised up so you could see it.

Q. As we do not know which ones were raised up, will you state? Did they inflate all of these while you were there?

A. They inflated and painted three of them on Thanksgiving Day, that is Thanksgiving Day and the day after.

Q. Did you see them after they were inflated and before they were painted?

A. Yes, sir, I saw those that were inflated and they all had the marks of prolonged settling in the water, such a mark as would be made on a gasholder when the water is gradually settling on the surface and leaving the dirt which gradually settles on the surface of the water, indicating they had been there for some time.

Q. Did you comment on this, you or Doctor Marks, in the presence of a representative of the Company?

Mr. MATHEWSON: I object to that. We had no representative there for the purpose of fixing the policy of the Company or dealing with that subject at all.

The MASTER: I do not know that it is of any materiality but I will allow the question.

Mr. MATHEWSON: Exception.

4660 A. It was commented on between all parties——

Mr. MATHEWSON: Just a minute.

Q. The question is whether it was commented on in the presence of this Mr. Ross who was the representative of the company.

A. Yes, I think Dr. Marks made remarks about it, and also Mr. Lacombe, we spoke of it several times.

Q. How soon thereafter were the tanks painted?

A. They were painted on the next day, Thanksgiving Day, when we came around the day after Thanksgiving, one had been painted and they were vigorously at work on another.

Q. You examined the buildings of the plant did you?

A. Yes, sir. I did not make calculations of the——

Q. No, you have not made calculations as to their value, but in what condition did you find the buildings?

A. The buildings were very old, and while not what you might call dilapidated, they have evidence of use and repairs. For instance, the retort house has trusses placed across it at intervals which I took to be to repair some settlement or disarrangement of the supporting columns. I think no doubt these trusses were introduced subsequent to the building. I noticed on the water table on both 14th and 15th Streets, notwithstanding the building was said to be sustained upon a double pile foundation, there was quite a perceptible wave; I did not measure it; it is not a straight line water table by any means or straight line; I think a level put over it accurately would show considerable deviation from the horizontal. The brick fences were anchored inside of the yard to keep them from falling out into the street. They lean outward about between 6 and 10 inches at different points towards the street, at the top, particularly on the 14th
4661 Street side. The ground level within is filled several feet higher than the street level, though, and I suppose this was caused by frost. The walls are anchored to the columns of the holder and also ground anchors to keep them from going over farther.

Q. Well, was there anything else you observed about the building?

A. I thought the coal storage building seemed to be in very poor condition and also the open storage yard; the coal storage over which they have the coal handling apparatus.

Q. Did you make any estimate of the depreciation of these buildings?

A. I could not make an estimate of the depreciation with any degree of accuracy, no. I think they are buildings that would be considered as out of date and would need considerable repairs. The mortar in the wall and various places was not pointed up and was washed out near the gutters; in fact, it was about the most dilapidated coal gas plant on a large scale that I have seen.

Mr. MATHEWSON: I move to strike that last statement out.

Mr. PAGE: I think it is competent.

The MASTER: No, I will let it stand.

Mr. MATHEWSON: Exception.

Q. Have you made any computation or examination as to the results of the operation of the plant in the production of coal gas and the cost of it?

A. I have taken from what we call the carbonizing reports of the works.

Q. Have you got those here? Produce them if you have.

(Witness produces papers.)

Q. Have you made an examination of City's Exhibit T for identification with respect to the 14th Street plant?

A. Yes, sir.

4662 Q. I think these are from month to month?

A. Those are the monthly carbonizing sheets from the different stations and they are aggregated in this statement.

Q. That is something that you had made up?

A. This was claimed by the accountants I think to have been made up by Deloitte, Plender and Griffith. Mr. Cuthbert thinks it must have been made up by the Gas Company and aggregated from that. He said it was the same typewriter. I had got it from Mr. Gans.

Q. Well, that is something that you got from Mr. Gans, was it?

A. That is something I got from Mr. Gans, I having requested him to have such a statement made up by the accountants, and I supposed it was made up by the State accountant, but Mr. Cuthbert says it was made up by the company.

Q. In making your examination, you have used the summary that I now hand you, have you?

A. Yes, sir. I looked this over with reference to the operations of the stations, in dollars and cents; and also compared it with the cubic feet of output.

Mr. PAGE: I ask that this be marked for identification.

Marked for identification State's Exhibit ZZ.

Mr. PAGE: You might put on the record that State's Exhibit ZZ for identification was prepared by and produced at the request of the counsel for defendant, by Mr. Carter, of the Consolidated Gas Company.

Mr. MATHEWSON: I think that is so. It looks so. If there is any correction of that, I will make it later. I have not been able to get in communication with Mr. Carter. He is not at the office.

Q. In the computations that you have made did you con-
4663 sider the corrections on page 15, which appear to be made in lead pencil, as being a correct statement, and as a correction of the typewritten matter?

A. I did not use the figure in that column. I used the figures in the column of gas made, for the purpose of making comparison between the operations of the different stations; not on the gas sold but on the gas made.

By Mr. MATHEWSON:

Q. So that the pencil corrections cut no figure in your computations at all?

A. No, sir.

By Mr. PAGE:

Q. Now, from an examination of this record what do you find in regard to the operation of the 14th Street plant, as to cost of production?

A. The average cost of production of the 14th Street plant is 37.85 cents.

By Mr. MATHEWSON:

Q. Where does that appear, if you will refer to the paper?
A. That is compiled from State's Exhibit T.

A recess until 2 P. M.

4664 After Recess.

HENRY H. EDGERTON resumes the stand and further testifies.

Direct-examination continued by Mr. PAGE:

Q. Now, Mr. Edgerton, have you made the computation in regard to the cost of the production of gas at the 14th Street station?
A. I have taken the cost stated in State's Exhibit ZZ, for identification, cost at the 14th Street station, gas made, 37.98 cents.
Q. Have you made a similar computation as to the other stations, and if so which one?
A. I have made a computation on the 21st Street, 44th Street and 99th Street stations, showing a cost of 31.05 cents.
Q. Making a difference in the cost as against the 14th Street station of how much?
A. 6.83 cents. Now, taking in consideration the gas made at the 14th Street station ,1,490,909,000 and multiplying it by the excess of cost at the 14th Street station, we arrive at the sum of $101,929.08 as the difference in cost as against the 14th Street station during the year.
Q. Now, you may proceed with what you were stating?
A. Taking in consideration the loss, which is virtually also a loss in profit on the whole business of $101,929.08, and capitalizing that at 5 per cent., I arrive at the sum of $2,038,581.60 as the impairment on capital of the whole business due to the operations of the 14th Street station.
Q. What do you mean by that expression, "the whole business"?
A. Well, I mean that if the 14th Street station had not been operated at all, and the gas could have been made at the cost
4665 of the other stations, they would have had $101,929.08 more of profit on the year's business.
Q. I understand, but you refer that to the impairment of capital due to the 14th Street station, $2,038,581.60?
A. Well, that was interest at 5 per cent. on their capital.
Q. What I want to know is whether that is on the business of the company when you said "the whole business," or whether it is an impairment of capital, or what it is. I just wanted to know what you meant by the use of that phrase "the whole business;" whether you referred to the plant or to the capitalization?
A. Well, the whole business of gas production and sales in New York City; the united plants.
Q. Upon this computation then at what would you value the 14th Street plant?

A. I think that computation virtually wipes out the 14th Street plant.

Q. Well, then, this to this extent would go the reduction of the value of the 14th Street plant?

A. Yes, sir.

Q. In fact, it costs the company that much more to produce gas than it would if they had a plant equally efficient with the other three; is that the idea?

A. Yes, sir; or they could buy gas to advantage from other companies.

Q. Have you made a similar examination as to the cost of gas to the Central Union Gas Company?

A. I had a statement from the accountants of the cost of gas at the Central Union, if I remember.

Q. I show you Exhibit 21 in the record of the case in the Supreme Court in the matter of the complaint of H. Brown and others, customers of the Central Union Gas Company, papers on appeal from order made by the Commission of Gas and Electricity of the State of New York, and ask you if——

4666 A. It appears from this account that it seemed to contain all the elements of cost of gas in the holders, less amounts received from tar, coke and residuals, placing the cost of gas in the holders at 26.57 cents.

Q. From your experience in the manufacture of gas, seeing that the Central Union manufactures 1,596,410,000, would a larger plant be able to produce a better result if operated with the same efficiency and with the same efficiency of apparatus?

A. Undoubtedly.

Q. From your experience and from your investigation as to the cost price of other modern and up-to-date companies, what would you say it would cost an efficient, modern plant, efficiently and economically managed, to produce gas and put it in the holder in the City of New York?

Mr. MATHEWSON: I object to that, in addition to my previous objection in regard to the witness' competency. He is not shown to be familiar with the conditions in the City of New York, or to be familiar with the price of labor or the price of materials here, and I submit it is simply a case of conjecture and not evidence, unless he is so qualified. He concedes he has never operated a plant in the city.

The MASTER: He may answer it.

Mr. MATHEWSON: Exception.

A. Considering the immense amount in New York City of gas and the prices prevailing here as shown in the accounts of the companies which I have looked over, and comparing it with the results and apparatus of a similar kind in other cities I think the price cost per thousand could be reduced to 24 cents.

Q. For a 22-candlepower gas?

A. Yes, sir.

Q. Would you or would you not consider then that 24

4667 cents would be the more correct figure to use in comparing the efficiency of the 14th Street plant than the 31.05 that you derived from the operation of the three other stations?

Mr. MATHEWSON: Objected to on the further ground that this is a conclusion that the witness is not entitled to draw, even if he were an expert on costs.

Question allowed. Exception.

A. I think a figure of 24 cents should be adopted as a basis as soon as the company is provided with a properly equipped, modern plant in order to make a gas at that price; yes, sir.

Mr. PAGE: I offer in evidence the Exhibit 21 of the Central Union referred to in a question just put by me, contained on pages 207 and 208 of the papers on appeal referred to, down to the point on page 208 where the first total is given.

No objection.

Received in evidence and marked State's Exhibit AAA.

Mr. PAGE: You may cross-examine, Mr. Mathewson.

Cross-examination by Mr. MATHEWSON:

Q. In referring to State's Exhibit ZZ for identification, you have been dealing in each case with the cost per thousand made, have you not?

A. Yes, sir.

Q. You do not refer to the 42d Street coal gas plant of the Consolidated Company. Does it not appear from this exhibit that the cost per thousand made is 34.87 cents per thousand of make at 42d Street?

A. Yes, sir.

Q. And you took 14th Street for comparison with the three
4668 water gas stations because it showed a higher cost than the other coal gas station, didn't you?

A. I did not. I am going to take and put 42d Street through the same process.

Q. That is reserved for a later date?

A. Yes, sir.

Q. Then the difference between the cost at the 14th Street station for the year 1905 and all the other stations of the Consolidated -as Company is not 6.83 cents, is it?

A. No, sir; it is comparing them with those stations I have named; 21st Street, 44th Street and 99th Street, because those are the only up-to-date plants that you have got.

Q. Those are all water gas stations, are they not?

A. Yes, sir.

Q. And if you compare the cost at 14th Street with the other four stations, including 42d Street, the difference would be less than 6.83, would it not?

A. Somewhat less.

Q. Now, isn't it considered good policy, in view of the fluctuation of the cost of various materials that enter into the production of coal gas and the production of water gas, to have a mixed plant as some witnesses have testified, half coal and half water?

A. Yes, I believe in a mixed plant of an efficient type.

Q. Isn't it true that there is always a difference between the cost

of gas produced in a coal gas plant and in a water gas plant in the same city?

A. Yes; it would be according to the cost of materials.

Q. But they probably never would coincide, would they? Either the coal gas or the water gas would cost more in the holder than the other?

A. Yes, the coal gas would generally cost the less because it is a lower quality and more cheaply produced.

Q. But don't you understand that the coal gas which is produced at the 14th Street station and at the 42d Street station is
4669 raised to the same candlepower as the water gas by enrichment, and that it has to be in the City of New York?

A. I understand it ought to be. I think, however, that it lags slightly behind the water gas stations in quality.

Q. Why do you think so?

A. I have made an examination of the reports of the candle-powers, both at the works and the inspector's candle-powers, and my impression is there is quite a notable difference in favor of the water gas stations. That is my impression.

Q. You know, do you not, that the 14th Street coal gas is enriched by oil gas which is produced at 21st Street and sent down to the 14th Street station?

A. Yes.

Q. And that the two gases are mixed before they are ever put in the mains?

A. Yes.

Q. And you know that the city examiner has a test station on the mains coming from 14th Street, do you not?

A. Yes. I found that he had, under different names the different stations represented in his testing office.

Q. And if the coal gas sent out from 14th Street were a 22-candle-power, or so near 22 candle-power as to be likely to fall below it, that would show in the tests of the city examiner made upon the 14th Street mains, wouldn't it?

A. Yes; I think it is always above, and most always above the 22 candles, but not as much above as the water gas plants.

Q. Now, you have said that the difference of 6.83 cents between the cost of three water gas stations and the cost of the 14th Street coal gas station, if applied to the output of 14th Street, would equal $101,000, and that that capitalization at 5 per cent. would be two million dollars. Will you tell me how much $101,000 would amount to in cents per thousand on the entire output of the Consolidated Gas Company, dividing by the amount of its sales, which
4670 are 13,283,000,000?

A. Well, that would require to be figured up.

Q. Cannot you tell me roughly, in a moment? I would like to know what difference that would make on the selling price of our gas?

A. About .76 of a cent.

Q. About three-quarters of a cent. Now, isn't it true that not only does the cost of gas in a water gas plant vary from the cost of

gas in a coal gas plant, but that the cost of gas in either a water gas or coal gas plant fluctuates from year to year?

A. Yes, certainly.

Q. Do you know Mr. Cowdery of St. Louis, or do you know who he is?

A. Yes.

Q. Have you seen a statement of Mr. Cowdery to the effect that he has known the cost of gas to fluctuate in a single year as much as fifteen cents a thousand, in the same plant?

A. On the cost in the holder?

Q. No, cost at the burner?

A. Well, that involves a great many more considerations, I suppose; other conditions; it involves taxes and a great many things beside the cost of manufacture. The cost of manufacture of gas is remarkably steady in a given locality, as long as the price of materials remains the same.

Q. But do the prices of material and labor remain the same from year to year in a large city generally, in your experience?

A. Very close.

Q. Do you mean to say that labor and material are very close now to what they were seven years ago in New York City, or don't you know?

A. Well, as applied to gas manufacture?

Q. Yes, I mean gas manufacturing.

A. I think on the whole there is very slight fluctuation in the price of material, so far as my experience goes.

Q. You haven't had any experience in New York City within the last seven or eight years, have you?

4671 A. I followed the operations in gas, yes, sir; pretty closely.

Q. You don't know how much the company has to pay or had to pay in 1905 for oil, as compared with 1897, do you, for the same amount of enrichment?

A. No, I don't know what they got in 1897.

Q. Do you know how the wages of caulkers and other employees of the Gas Company compare now with what they were ten years ago in New York City?

A. I have heard the comparisons made. I don't find that there is any great fluctuation in the price.

Q. Do you know yourself?

A. I cannot say that I know of my own knowledge. I only gather it from inquiry.

Q. Now, you say that this $2,038,000 which you would get by capitalization at 5 per cent., $101,000, would virtually wipe out the 14th Street plant. If you wipe out the 14th Street plant you would have to invest somewhere else, wouldn't you, in order to produce the same amount of gas, if the company produced it?

A. I should have invested long ago in that direction.

Q. That may be, but that is not the question. Would not they have to have further capital and further property to produce the gas which they would lose at 14th Street?

A. Yes.

Q. That would not mean a net reduction of $2,038,000 in the capital of the company, would it?

A. No; the capital remains the same, but its earning powers would be impaired to that extent.

Q. How could the capital remain the same if you wiped out the 14th Street plant and built another plant to produce the same amount of gas? What would become of the 14th Street investment? Would it be charged off to depreciation?

A. It ought to be, yes.

4672 Q. Then your theory is that the 10.89 cents which the company says it has expended in repairs and renewals for the past twenty years has not been sufficient to take care of proper depreciation; is it?

The WITNESS: In my examination of the books——

Q. No, answer the question.

Mr. PAGE: I submit the form in which that question is put enables the witness to correct an erroneous theory, if he conceives it to be such, that the counsel has assumed as a theory.

Mr. MATHEWSON: I am asking whether that is his theory or not. That is susceptible to a yes or no answer, I think.

The MASTER: Yes.

The WITNESS: Will you please read the question?

The STENOGRAPHER (reading): "Then your theory is that the 10.89 cents which the company says it has expended in repairs and renewals for the past twenty years has not been sufficient to take care of proper depreciation; is it?"

A. I should think that that amount would more than take care of repairs and depreciation; decidedly more than take care of it.

Q. You think it would?

A. Yes, sir.

Q. Then if the company has spent 10.89 annually in repairs and depreciation for the last twenty years, and you find the plant depreciated now to the extent of $2,038,000 notwithstanding, how do you reconcile that?

A. Very readily. I looked at the books and I found that one of these items was charged as a depreciation item, and it was under the head of renewals; and I found extending back during a series

4673 of years other items under the head of renewals, and I suppose, and I had a right to suppose that those are the same character and therefore they had sufficient to renew that works twice over.

Q. That is the whole supposition, is it? That is the whole basis of your theory, is it? Depreciation as a charge is never an expenditure, is it?

A. No, sir.

Q. But where an amount is charged to depreciation and money is received representing that, then the company expends up to that in new construction, doesn't it, without adding anything to its capital account? In other words, if it expends another similar amount

it has simply brought its capital to the point where it was before the depreciation was charged off; isn't that right?

A. My idea of the depreciation fund is that it is set aside as a fund.

Q. Well, let us approach it in another way; we will assume that the company charges off in a period of five years $1,000,000 to depreciation; it puts in new construction to the amount of $1,000,000; that brings the capital back, doesn't it, exactly to the point which it would occupy if no depreciation had been charged off and no new construction had taken place?

A. If the money had been spent on the thing depreciated and not another construction I said they can get it back.

Q. Would not the total plant be of the same value, no matter what part of the plant you expend this money on?

A. Well, that would not be my way of thinking it.

Q. No matter what you think. Won't you answer my question?

A. I don't think it would. I think the depreciation should be spent in the direction of the material depreciation to restore it rather than some other direction.

Q. Let me put it again: assuming that a company in a
4674 period of five years charged off $1,000,000 to depreciation upon the various operations of its plant, and that within that same period it expended $1,000,000 in new construction. Would not the total plant value stand at exactly the same figure as though no depreciation had been charged off and no new construction had taken place?

A. It would stand at the same figure, yet——

Q. Well, that is the question. Now you have answered the question.

Mr. PAGE: I think he has a right to explain if he wishes.

Mr. MATHEWSON: I think he can do so on redirect. I do not want him to waste time answering questions I have not asked.

Mr. PAGE: I will take the ruling of the Master on that.

The MASTER: He has answered the question.

Q. Don't you mean the capital would be the same? Wouldn't it be true that the total capital value would be the same as it was originally?

A. The total capital value would be the same, but if the money was spent in the wrong direction it would not be the same, in the sense that it had been—I will give an example: if you spent the money on mains and allowed an old retort house to go on depreciating instead of renewing that particular thing, their earning capacity would be very much influenced by it.

Q. I am not talking about the earning capacity; I am speaking about the capital value of your plant.

A. The value of the plant is dependent upon the earning capacity, I mean.

Q. Let me show you Complainant's Exhibit 79. Take, for instance, the item of mains, which on November 11, 1884, appear to

be valued at $5,233,962.10; it appears that there has been
4675 construction since consolidation of $3,549,249.15, and depreciation has been charged off to the extent of $841,060.22. Now, you observe that the net increase which has been added to the capital is simply the construction since consolidation, less the depreciation of $841,000.22. In that case, does not that amount to a renewal in the mains account of the amount which has been charged off to depreciation by an actual expenditure?

A. Yes; in the mains.

Q. Isn't it so in each one of the other items which appear on Complainant's Exhibit 79, with the sole exception of office furniture and fixtures, where the depreciation has been greater than the addition by about $30,000?

A. Yes, that is true, but it does not——

Q. Well, you have answered the question now. So that an expenditure always goes in construction which takes the place of depreciation and not in the charge to depreciation itself, does it not?

A. Yes.

Q. Assuming that the Company did not construct a plant to take the place of 14th Street, if that were abandoned, you said they might buy gas. Didn't you observe that the amount that the Company had to pay for gas which they did procure under agency agreement was greater than the 31.05 cents and was in fact between 33 and 34 cents?

A. I knew it was higher. I do not take that into consideration.

Q. So that if they were able to procure gas at the same rate that they have heretofore procured it there would not be a difference between that price and the cost at the 14th Street amounting to as much as 6.83 cents per thousand feet, would there?

A. No, sir; but they seem to know how to make it cheaper.

Q. Well, that is another thing. We may hire you to do it before we get through.

A. Very well.

4676 Q. You spoke about the Central Union and that the cost to the Central Union you have stated was 26.57, according to an exhibit which has been offered here. You know that is for the nominal year ending October 31st, 1905, do you not, or don't you know it?

A. Yes, I knew that all those Commission reports ended on this October 31st year, I believe it was.

Q. Did you know that only four months of that period was under the law requiring 22 candle power?

A. I know that the law did not go into operation until the——

Q. First of July, 1905?

A. First of July.

Q. Then if the year ended October 31st, two-thirds of that year would be under the old 20 candle-power law, would it not?

A. I understood there was no 20 candle-power really established here, it was a 22 candle-power rate.

Q. You understood that the penalty was affixed only in case 20 candle-power was produced, didn't you?

A. Yes, I believe they are only penalized at 20 candles, and I suppose they kept it higher than 22 candles.

Q. Why did you suppose? Did you make any examination of the city examiners' records to find out?

A. Yes, there was quite an amount of gas went out higher than 22 candles.

Q. But you found it frequently went below even 20, didn't you?

A. There were occasions, yes, sir.

Q. Have you read the testimony of those representing the Central Union Gas Company before the Gas Commission as to the candle-power the Central Union maintained during the eight months prior to June 1st, 1905?

A. No.

Q. You did not know that they testified that they did not maintain even the 20 candle-power which they conceived to be required
4677 by the law, in view of the fact that there was no inspection as to candle-power in the Borough of The Bronx where the Central Union was operating?

A. I did not know they were taking advantage of that.

Q. You did not know that they testified that 26.57 cents would be the cost if they maintained the candle-power, did you?

A. The cost would be slightly greater.

Q. It would depend whether it was slightly greater or otherwise as to what candle-power the Central Union did maintain during the first eight months of that period?

A. In any raising of candle-power, there is a very slight increase in cost.

Q. It has been testified here by various witnesses that a raise of candle-power of 5 would make about 5 cents difference in the cost of gas?

A. Five candles is obtained from a gallon of oil.

Q. Yes, and a gallon of oil costs between four and five cents, according to the records here, does it not, so far as these companies are concerned, at any rate?

A. It is so said.

Q. And did you know that the Central Union product was divided between coal and water gas and that the market for coke was very much better at their plant so that they received a much higher price for coke than the Consolidated got for its coke in the city, or did you not know that?

A. I knew that the market for coke in the city as charged was very low. I suppose they had a very poor sale.

Q. Did you read that the Central Union happened to have customers immediately at hand who took their coke without storage or transportation, at a price substantially higher than the Consolidated was able to get?

A. Yes, but the Consolidated has consumers at hand also.

Q. You understand it was impossible, according to the testimony, to get as good prices for the coke produced by the Consoli-
4678 dated in New York City, Manhattan, as it was by the Central Union in The Bronx?

A. Yes, but I did not believe it.

Q. You have never bought or sold any coke either in The Bronx or in Manhattan within the last five years?

A. No, but I have——

Q. Well, have you?

A. No, sir.

Q. Now, you say a larger plant ought to produce a better result. It ought to produce a better result provided everything else is equal, ought it not?

A. Well, other things being equal, yes. I do not see that there is——

Q. Well, if you had a more expensive apparatus and a higher capitalization per thousand than the Central Union, that would to some extent offset the lower cost of gas, would it not?

A. To the extent that the capitalization is higher, requiring a greater margin.

Q. And the coke conditions and candle-power maintained would also have some effect upon the result?

A. It would have effect; it is all susceptible of calculation as to what it would be.

Q. Now, you say that gas should be manufactured in the City of New York at 24 cents per thousand feet, in spite of the facts to which I have called your attention respecting the Central Union, which for this deficient candle-power gas cost 26.67 cents, do you?

A. I think so, yes, on the scale that they——

Q. Will you name any city where the gas is produced at 24 cents in the holder, including repairs and expense and distribution as to works, as well as labor, and material and enrichment, and so forth, up to the holder?

A. Yes, I think that if I remember rightly, New Bedford has as low a price as 24 and a fraction.

Q. What is the candle-power at New Bedford? Is not the legal candle-power in Massachusetts, including New Bedford, 16 candles instead of 22?

4679 A. Yes, but very few make 16 candle gas. It exceeds that candle-power.

Q. Yes, and so our gas here, so we never, in any instance, fall below it. But is not the legal standard in Massachusetts 16 instead of 22 candle?

A. That is the legal standard, but it is not a marketable gas.

Q. You do not claim they maintain 22 candle power in New Bedford, even on the average or usually?

A. I don't think they do. If I remember rightly they maintain about 18 or 19 candle power.

Q. Now, will you be good enough to divide here this 24 cents which you have said should be the cost in New York, indicating how much should be the cost for coal, how much for oil, how much for labor and the other elements that go to make up the cost in the holder?

A. Well, I made this cost up from the operations in other cities and——

Q. Well, you have not named any other but New Bedford. You

may quote anything from New Bedford, if you can, in giving these items?

A. That is public—the people are making gas cheaper and selling it cheaper and they do not want their prices quoted, as they gave them in confidence, and therefore you cannot use their figures. But I——

Q. Well, I shall ask you to state what your details are of the 24 cents per thousand feet in the holder, including also repairs, distribution at the holder and at the distributing station and the ordinary expense?

A. I will have to take time to make up such a statement as that.

Q. You do not mean to say that you have given this 24 cents without making up a statement?

A. As far as that is concerned I had the prices of these other companies in view, and being smaller and some of them not as well situated as New York, I had a right to assume that they could
4680 do as well in New York, and I presume they will with their new works.

Q. Well, the testimony is not that way; but is there any one of these companies to which you have referred that maintain 22 candle power gas, which never allow it to fall below 22 candles, tested at least a mile from their works?

A. No, I do not think any of them have quite that candle power on the average.

Q. I shall expect you to state what these companies are, Mr. Edgerton, if any weight is to be given to your evidence on that ground?

A. Well, I may get leave to use some of those figures; I think probably I can, because they are selling gas cheaper and they probably won't care to make a secret of it.

Q. You are not able to divide up this 24 cents then on the stand at present, are you, to show what you assigned to each element?

A. No, I should take time to do that and be very careful about it. I only made the statement of 24 cents based on other cities where they——

Q. I want to know what the other cities are and what the conditions are which prevail?

A. The conditions did not seem to be any more favorable than New York, except the question of candle power.

Q. There is one question that seems to be more favorable, and that is candle power?

A. Yes, I think you should receive credit for any excess over 22 candles, certainly.

Q. You spoke about the gas manufactured at Danbury, in a previous examination. You do not refer to that gas, do you, where you said you were chief engineer?

A. I said I constructed the works.

Q. No, but you said you were virtually managing it now,
4681 didn't you?

A. I said they referred almost all questions of management to me, sir.

Q. As a matter of fact, that is a sort of oil-water gas, is it not, of something like 35 candles?

A. Yes, 35 candles according to our test, and 44 according to the test with a large burner.

Q. What do you mean by a large burner, Argand?

A. No, giving a large flame, say, about 25 candle flame. We test the gas with a 14 candle flame.

Q. What price does Danbury receive?

A. It averages $2.70.

Q. What is the high and what is the low price?

A. The highest price is $3.15 and the lowest price is $1.75 for that quality of gas, 44 candles, per thousand.

Q. As a matter of fact, you sell your gas at Danbury on the basis of 14 candle power, don't you, with an additional pro rata charge for anything beyond that?

A. 14 candle power it was originally, but it is now 17.6 owing to the——

Q. Will you explain just what that is? Do you make your charge on the basis of 17 candles?

A. 17.6 candles.

Q. And you have an arrangement in your meters, by which the consumer, if he gets 34 candles, pays twice as much, don't you?

A. No, there is no peculiar arrangement of the meter except this: the bill is registered at the rate of one cent an hour for 17.6 candle light and a discount is made from that of 40 per cent.; that is the highest price paid; and I think there is 10 per cent. for cash. The price has been lowered recently. I have not heard to what extent.

Q. But for anything above 17.6 candle the effect of the arrangement is that the consumer pays in proportion to his additional candle power?

4682 A. He pays strictly by the candle power of the gas, yes, sir.

Q. And if the candlepower was 35.2 which would be twice 17.6, he would pay twice as much?

A. Well, understand, we maintain as closely as possible a stated candlepower during the month and he pays the sum that the average candlepower is kept as near as possible——

Q. It is adjusted to 17.6 candlepower?

A. As near as we can get it. In the winter time it may run something below and in the Spring and Summer it runs somewhat above.

Q. In other words, for 500 feet of gas delivered at 35 or 36 candlepower the consumer would be charged for a thousand feet of gas at 17.6 candles?

A. No, he is not charged in that way. It is registered directly on the light.

Q. Yes, I know, however it is registered, that is the effect of it, is it not?

A. The effect of it is he pays according to the candlepower.

Q. And for 500 feet of 36 or 35 candlepower gas he would virtually pay for a thousand feet of 17.6 candle-power; that is the way it is figured, is it not? You deliver him 500 feet of 35 candle-power

gas and he pays for one thousand feet on the theory that he pays for 17.6 candle-power.

A. He pays at the rate of two feet an hour. His burner would burn two feet an hour in place of five; that is all there is of it. It is a simple matter of calculation. We do not need to quibble about it.

Q. I am not trying to do that, I am trying to get the facts. You deliver 500 feet if the candle-power is 35 and he is charged for one thousand feet on the theory that you are entitled to charge the gas at 17½ or thereabouts, is not that the effect of it?

A. That is not the proper way of stating it. We do not do anything of the kind.

4683 Q. He pays in direct proportion to the increase in candle-power in substance, doesn't he?

A. That is it substantially.

Q. And therefore the charge is made on a candle-power basis?

A. On a candle-power basis, just the same as all gas ought to be sold.

Q. If a rise in candle-power is only a slight additional expense as you stated a few minutes ago, why is the charge made up proportionate to the increase in candle-power, no matter how much, in the case of Danbury?

A. The charge is made the same all the time. The idea is to keep the candle-power at the same point. We do not alter every month's bill or rate of charge according to the candle-power of that month.

Q. I understand that. Is that the best answer that you can make?

A. If your question implies that there is a constant changing or shifting according——

Q. No, it does not imply anything of the sort.

Mr. PAGE: Read the question.

Mr. MATHEWSON: I will ask it in this form.

Q. You stated a few moments ago that the increase in candle-power in New York involved a slight increase in the cost of the gas. Why then in Danbury is it sold for an additional price directly proportionate to the increased unit which you assumed based upon a standard of 17.6 candles?

A. It is sold at a price to produce a profit without any reference to the point you mention. I do not exactly get the purport of your question, but if you mean to say why we do not give this additional candle power for nothing or why we charge for the additional candle power——

Q. No, I do not intend to ask any such thing, Mr. Edgerton. If you cannot answer the question I shall not push it further.

4684 You stated that you were the inventor of a process of gas manufacture. Was not that a process of gas manufacture by retorts, a sort of oil gas process?

A. Oil and water gas. That is a good many years ago.

Q. It was a good many years ago, wasn't it?

A. Yes.

Q. Are any of the plants which you designed and put in operation under this process working to-day?

A. Yes, sir. Danbury is working to-day.

Q. Any other Danbury?

A. No. They have been pretty much chased out of existence. There is no chance of working plants, with promoters scouring the country and grabbing everything they can get hold of. I had a plant operating at Wallingford and operating well and successfully, and they were never left at peace. There were promoters there, and there was not a month in the year, when some schemer was not there to get them to change their plan of operation, not a month in the year, and sometimes not a week.

Q. Trying to induce them to put in a poorer process than yours?

A. Yes, and it showed it, because they have gone to pieces, and they pay no more.

Q. And the owners of gas plants which you put in under this process have been persuaded by promoters to substitute other processes for yours in every place except Danbury?

A. Well, I will give you the history of New Orleans, now you are asking about this. The New Orleans Company paid the construction works $700,000 of bonds through the operation of my plant; they raised the interest payment from 5 per cent. to 6 per cent. They were persuaded by promoters to water their gas down and decrease the illuminating power and went into the hands of receiver. That was about the end of their day.

4685 Q. How long was your process in operation in New Orleans?

A. Quite a number of years, long enough to pay up all the bonds and increase the interest from 5 to 6 per cent.

Q. Then they found it advisable to substitute some other plant, did they, some other process?

(No answer.)

Q. Do you remember what year New Orleans went into the hands of a receiver?

A. About three years ago, I think it was, two or three years ago.

Q. How many years before that was your plant in operation in New Orleans?

A. It was only operated in substance for a number of years——

Q. How long before that time was another process and plant substituted for yours in New Orleans?

A. Oh, they commenced experimenting on various processes from 1890, along in there somewhere, I think. I saw it in Brown's Directory. I did not keep very close tab on the matter, but I saw it put down in Brown's Directory as my process for quite a number of years. I don't——

Q. Now, do you understand that the New Orleans Gas Company, the operating company in the City of New Orleans, actually did go into the hands of a receiver at all?

A. That is my understanding.

Q. Do you state that to be a fact?

A. I think they made some sort of an arrangement by which they

got out by some deal or arrangement, but that was stated in some engineering paper that I saw, that they had——

Q. That is the basis of your information on the subject, is it?

A. No. There is a young man that I put in charge of the plant in Asheville, North Carolina, who told me it was the worst busted thing he ever saw.

Q. New Orleans?

A. Yes.

4686 Q. And he told you the New Orleans Company went into the hands of a receiver, the operating company?

A. He told me they could not pay their lease. That is just like all those promoted concerns, they bust sooner or later.

Q. Let us take the property at 14th Street respecting which you testified. You say you put the furniture, at $1,875 cost new, according to Mr. Mayer, at 40 per cent. depreciation, and you say that it will not sell for its original price or anything like it. Is it not true in your experience that second-hand furniture, even if you have it only for a few days, brings but a fraction of its original cost if it is sold as second-hand furniture?

A. That is just it. I was taking the value of it, but I could have purchased an outfit like that for one-quarter of the sum.

Q. Second-hand?

A. Second-hand.

Q. Why did you put 60 per cent. instead of 25 per cent. as the present value?

A. Well, I thought the furniture was useful as it was, and although furniture equally good could be purchased at far less, the fact that it was about as useful and good for the purposes of the company, it was not entitled to that depreciation.

Q. You were never in the furniture business, were you?

A. No, but I know what it is to sell furniture.

Q. Yes, second-hand furniture. Do you mean to say that the contents of this office building as recited in the schedule that you have before you could be purchased new for less than $1,875?

A. I presume not. It might cost more than that.

Q. Did you not find that all the desks seemed to be solid and in use, and sufficient for the purposes of the company?

A. Yes, that is the reason I did not consider it depreciated as I could have bought such furniture second-hand.

4687 Q. And your valuation then was on the basis of second-hand furniture, was it?

A. Not entirely. I assumed that as second-hand, looking the furniture over, that it could be purchased at one-quarter of that, but as it was still as useful for ordinary use, the depreciation of 40 per cent. would not be out of the way.

Q. Did you not find that these desks were in use and were apparently sufficient for the purposes of the company?

A. Yes.

Q. You did not see any of them breaking down, did you?

A. No, there was nothing the matter with them.

Q. The iron safe seemed to be all right, didn't it?

A. Yes, an iron safe is a pretty lasting piece of furniture.

Q. Will you point out the items there which has been broken down or which appeared not to be serving their purposes all right?

A. I do not claim that they were not serving their purposes. I suppose some of the chemical apparatus might be broken down. In fact, it would be impossible in the time that I made that round that I should look minutely into all those. I just took a glance over all the furniture.

Q. Have you bought any Rowland's boilers lately?

A. No, sir.

Q. Did you get any quotations from the makers of the Rowland boiler as to the price for which they would install an 80 horse-power boiler of the dimensions specified here?

A. I did not, because I consider the Rowland boiler too expensive for ordinary use.

Q. You do not deny that the cost of a Rowland boiler if you were to get a Rowland boiler of that character would be $2,109, as Mr. Mayer stated, do you?

A. No, that would be over—I say $25 a horse-power. I
4688 think that was a high price for a boiler for such uses.

Q. I am talking about a T. F. Rowland boiler, this particular brand of boiler of the dimensions specified here and of 80 horse-power. Have you any doubt that that would cost new $2,109, if you wanted to buy that kind of a boiler?

A. I did not quote Rowland on it. I think very likely they would charge that, because it is a very expensive boiler to make.

Q. Let us take the cast iron tank which you say you saw on the roof, $4,275, according to Mr. Mayer. You valued it at $2,500. Was not your valuation due to the fact that it was not in use, as you thought?

A. I figured that out as any iron work, I think it came to a few dollars over $2,500, calling it ¾ inch thick and allowing for flanges, and I think I allowed 6 cents a pound on that computation.

Q. How much did you assume that it weighed?

A. I did not assume it, I calculated it at ¾.

Q. How much did you calculate its weight was?

A. I am mistaken in the figure I employed as a multiplier. 72,348.

Q. Pounds?

A. Yes.

Q. At 6 cents would be how much?

A. I stated that wrong. It is 3½ cents.

Q. You took it at 3½ cents?

A. Yes. It is not wrought iron work, it is a casting.

Q. Will you tell me how that 3½ cents is divided between the various elements of the price of material, shop labor, freight——

A. I did not figure that up. I figured it in bulk, for I did not have time to go into all the minutiæ. I took 3½ cents; $70 a ton is sufficient to make a tank.

Q. Well, we are talking about this tank. Did you measure
4689 the thickness of it?

A. No, I did not measure the thickness of it, it is ¾ inches thick.

Q. Assumed?
A. Yes, I assumed ¾ inch as sufficient.
Q. Will you tell me how much of that 3½ cents you allowed for the average price of material to make a tank of that sort?
A. Well, it was all iron, iron casting, I thought that was ample.
Q. How much do you allow of that 3½ cents for the average price of material without any labor at all on it?
A. You mean of the iron itself?
Q. Yes.
A. Iron would not be worth any more than——
Q. The average price of material in the shop?
A. Not more than a cent.
Q. Not more than one cent?
A. Yes.

Mr. PAGE: Do you mean the casting or the raw iron?
The WITNESS: Do you mean the pig iron?

Q. I mean the material, pig iron.

Mr. PAGE: Start back at the ore, why don't you?

Q. Well, take the finished casting without any further labor on it; take it at that stage, the finished casting. How much per pound would you allow for that?
A. I did not divide it up, but I suppose two and one-half cents a pound would be the casting price.
Q. That would be one cent to cover shop labor and freight and drayage and labor of erection?
A. Yes.
Q. Do you think that one cent would cover those items?
A. I think possibly, yes.
Q. Not possibly, but do you think it would?
4690 A. I took that lumped, at $70 a ton, sufficient to cover that kind of work.
Q. I am trying to get you to go into details?
A. I cannot do that because I did not make a detailed calculation in that way, for there is no chance without accurate measurements of the tank, and the actual thickness of the tank, and I do not really suppose it was three quarters inch thick, in the first place, because it is only four feet deep and three-quarters of an inch thick would be rather heavy plate.
Q. You said probably two and one-half cents for average price of material in the casting. Now how much would shop labor be, do you think, or have you not ever manufactured apparatus of this kind so you can tell?
A. I have seen details of shop labor. I did not put that in there.
Q. Can you state how much the shop labor would be on that?
A. No, I cannot. I know they put——
Q. Can you tell how much the freight would be from the place of manufacture?

Mr. PAGE: If you give us the place we might ascertain.
Mr. MATHEWSON: He has given the value, I think I will ask him to state.

The WITNESS: I did not suppose they went any great distance. It never entered my head that they went to Havana or any distant place.

Q. Well, they probably did not go to Havana, they might go there for cigars. Let us come down to casting. What allowance did you make for freight? You must have assumed it came some distance and was not made in the shops of the Consolidated Gas Company?

A. I am taking cast iron delivered in shapes that are planed to a certain extent, I think $70 a ton would cover it.

4691 Q. How much per pound for freight?

A. It depends where it came from.

Q. Oh, well, assume any reasonable place, not Havana.

Mr. PAGE: He says he did not make that calculation.

The WITNESS: There was no freight, nothing more than a lump sum.

Q. You did not include any freight in your 3½ cents?

A. I did not divide that up into shop labor, the number of bolts, the number of surfaces planed?

Q. Did you include any shop labor in your 3½ cents?

A. I included that thing put up there for 3½ cents per pound.

Q. Taking the price of material at 2½ cents, I want you to tell me how much of the one cent remaining is shop labor, freight and drayage, and how much is the labor for erection, just those four items.

A. I stated that was the lump price. I could not go into the details of it.

Q. Could you cast such a plate ¾ of an inch thick successfully, do you think, or could it be successfully done ordinarily?

A. Plates are cast ¾ of an inch thick, thousands of them, every day.

Q. Of this size?

A. You do not suppose that tank is all in one piece, do you?

Q. I am asking you a question?

A. It depends what size——

Q. Don't you know what the sizes are of the plates in that tank?

A. No.

Q. You did not observe that?

A. No, I know they made them as big as they could to get them together.

Q. Would not the iron chill in running a plate of that thickness or size, or are you not able to state?

A. Of what size?

4692 Q. Of the size the plates were there as you observed it?

A. I said I did not go inside of the tank and observe the size of the plates. I simply took it that would cost—a plant as large as that, they could successfully cast the plates and flange plates——

Mr. PAGE: What was the question, would not the iron chill?

Mr. MATHEWSON: Yes.

The WITNESS: Whether plates of that thickness are cast every day? Thousands of them.

Q. Of the size of the plates that are there?

A. Well, the size of the plates that are there I don't know anything about.

Q. I do not care anything about thousands of other plates. I am talking about the plates here. Let us confine ourselves to the subject in hand?

A. If I had been allowed to go there and look in the tank and take the size of the plates I could have made an estimate——

Q. You say there was a new engine there that was connected with that tank, don't you?

A. I don't think there is a new engine.

Q. Did you not say there was a new engine there which you say you thought never had been used and which you were informed was connected with that tank in some way?

A. No, I said there was an old boiler fired up there and banked.

Q. What was this new engine connected with, what tanks?

A. I think the only item I mentioned to you of apparently new work was in what they call the exhauster house, or what I should call the pumping station. I did not see a new thing around the place so far as I saw, I don't remember mentioning anything new.

Q. One more question then about this tank. If the plates were small there would be a greater weight of flanges and also an
4693 increase in shop and erection labor, would there not?

A. Yes. I made a calculation that a plate could be cast, that is, three-quarters of an inch thick, and adding ten per cent. for the flanges, that would make that tank—I have seen tanks made without any planing whatever, simply caulked in, and I presume it is fair to assume that that tank is caulked in with iron filings.

Q. How could you compute ten per cent. for flanges, unless you knew the size of the plates, because the amount of flanges depends on the size of the plates?

A. All those questions—we will say 10 per cent. for laps and rivets, in wrought iron work, and we assume a given amount for flanges, not taking it to be anything out of the ordinary, that there were some extraordinary flanges, and some extraordinary plates. I took it just as an ordinary tank plate. I will say this, that the older form of tank plates were very frequently put together just simply with iron cement.

Q. I don't care about what happened in any other case except in this particular tank, so if you have got through with this, I will go on to another subject. Take this one small engine, Novelty Iron Works, which you place at $1,500 against Mr. Mayer's $3,000. Did you get a price on an engine and if so from whom?

A. Anybody knows that a 50 horse-power engine can be bought at $20 a horse-power at any day of the year, a perfectly span new engine.

Q. Does it make any difference what the brand is?

A. There is a great deal better engine than that, for that is an old engine.

Q. Did you make any inquiry of the Novelty Iron Works or who-

ever manufactures that boiler now as to their price for an engine of that description?

4694 A. No, the Novelty Iron Works as I remember it died off years ago. I haven't heard a thing of them for at least twenty-five years.

Q. I covered that by saying whoever manufactures that engine at present.

A. Yes, I have got prices from dozens of people.

Q. Will you give me the name of any concern manufacturing the Novelty engine from whom you made an inquiry before your testimony here as to the price of an engine of that description?

A. The Buckeye engine makes a very much better engine than that.

Q. That is not the question. Won't you be good enough to answer my question, or I will never get through with you, if you do not. Will you give me the name of the concern from whom you made an inquiry and which is now manufacturing that engine, as to the value before your testimony here?

A. No, I did not consider it necessary to make a Novelty engine. It is a steam engine of a certain horse power, and it is an old inferior engine compared with engines that I can get at $20 a horse power. That is a simple proposition.

Q. You then appraised some other engine and not this particular engine, did you.

A. I appraised a better engine——

Q. Did you appraise this particular engine? Do you mean this particular engine can be purchased new from the manufacturers and installed at less than $3,000, and if so give me the name of the concern that manufactures it or will do it?

A. I don't think, as far as I remember the engine, I don't think there is a concern in the United States making that engine. I don't suppose such an old engine is made by anybody. The present engines are much superior.

Q. Did you include in your figures the cost of installation

4695 of the engine, the erection of it, or was it sidewalk delivery as Mr. Logan testified respecting some of his items?

A. Well, say 50 horse-power at $20, at which I can buy a better engine, is $1,000, and I assessed that at $1,500, I think $500 will cover putting that engine position, I suppose; I am satisfied it would.

Q. That is not the question. (Question repeated.)

Mr. PAGE: I think the witness has answered.

A. My answer would be that I assume that $20 per horse-power for a better engine, and that was $1,000, and I allowed for this engine $1,500, which would put it in position and pipe it up and do everything you wanted to do, and there was a depreciation on it which I called 25 per cent.

Q. Do you put the same depreciation on one type of engine as on another?

A. No, I put a larger depreciation on some engines than others. The faster the engine goes, the wear and tear is probably greater;

the greater the piston speed, although it is a matter which is of small difference.

Q. Did you find the engine in operation?

A. The engine was going when I was there, yes, sir, and running smoothly.

Q. No outward indications of deterioration were there, as you observed?

A. No, there is nothing—unless an engine is actually broken down, there is nothing shown outside. The wear and tear on an engine is the cylinders which have to be rebored or——

Q. You did not observe any pounding, did you?

A. No, the engine was moving well enough. I did not hear anything wrong about it. It was a slow moving engine, if I remember rightly.

Q. Is it not also true as to the McKenzie exhauster and the No. 9 Root exhauster, that they, so far as the outward appearances are concerned, were in perfect working conditon? You have
4696 appraised them at the same price new as Mr. Mayer?

A. All those things looked well enough outside. The moving parts are all inside, and the wear and tear takes place, barring accident, in the inside.

Q. Is $150 higher than the cost of a Huntoon governor?

A. I have bought a Huntoon governor, exhauster and all for less than $150. It all depends on the size.

Q. How many years ago?

A. Several years ago. I guess the old man is dead now.

Q. You have not bought a Huntoon exhauster of this size in the last two or three years for less than $150?

A. I don't know whether they are made now. I don't believe that governor is less than twenty-five years old.

Q. Aside from that, you have not bought a Huntoon exhauster of this size in the last two or three years for less than $150?

A. I don't know that a Huntoon governor is made anywhere, I don't suppose you can find one.

Q. It was a well known character of governor and had a high reputation?

A. Years ago it was considered a very good thing. It is to prevent vibration in an exhauster. I first saw it in operation in the Mutual Works in New York; they were cracking it up then; and I became afterwards acquainted with Mr. Huntoon, and in talking about prices, he made an exhauster, governor and all included, for $150.

Q. What kind of exhauster?

A. A jet exhauster.

Q. What size was the governor?

A. It was a small affair. But a governor, understand, does not have to be in proportion to the size any more than the Governor of New York has to be any bigger than the Governor of South Carolina.

Q. It was not a governor of the size of this governor, was it?

A. Just about the same size, I don't think there was any difference in the size of the drum.

4697 Q. What is a jet exhauster?

A. That is just where you exhaust gases by a jet of steam going through an aperture and drawing the gas with it. It has been used for a good many years.

Q. It is not a very elaborate piece of apparatus is it?

A. It is not very elaborate, but it is quite useful. There are great numbers of them in use, the exhausters and blowers at present.

Q. Now is it not also true that the No. 6 Root exhauster and the one drill press in the machine shop to which you have referred and which you valued new at the same price as Mr. Mayer, showed no outward evidences of being out of repair?

A. The Root exhauster you are inquiring about?

Q. Number 6?

A. No, the outside of an exhauster, unless it is broken down, does not show the wear and tear its interior has, but the blades revolving in the cylinder wear away and are taken up by springs and also the cylinder itself in which it operates is worn away.

Q. Are there any blades in a Root exhauster?

A. Yes, sir, there are blades in a Root exhauster. Did you ever see inside of one?

Q. How many?

A. There are two blades for each one of the revolving discs. You have got to run it with blades. Where did you get your information there was not any?

Q. I did not get any information. I am trying to get information from you, but seem to have had very poor success, because you don't seem to know very much about it, if you want to know.

Mr. PAGE: I object to counsel making these statements to the witness.

The WITNESS: I will make a sketch for you if you want me to.

4698 Q. Let me call your attention to the smith shop. Take the four forges, four anvils and so forth, $430, and the other items in the smith shop which you valued new the same as Mr. Mayer; is it not true that those were apparently in good condition?

A. An anvil always looks all right.

Q. But you took 25 per cent. depreciation off for that?

A. Well, it was in bulk, for all the shop, which includes emory wheels which wear out, and tubes, and stocks.

Q. Were those emory wheels worn out?

A. An emory wheel does wear out.

Q. Were those worn out? Of course an emory wheel does wear out.

A. I could not of course examine everything, I took it from the appearance, that 25 per cent. depreciation was all right. The price seems all right, but it certainly was a most decrepit place, if you want to know the truth. I never saw anything in the way of a blacksmith shop even out in the country that looked so worn out.

Q. Will you define which of the items in this smith shop were worn out? Give us the names of them. Tell us how they were worn out. How about the forges, were they worn out?

Mr. PAGE: I do not think the question is fair, in that the witness has not said they were worn out.

The WITNESS: They had the appearance of a tramp.

Q. Were the forges not in good condition for operation?

A. I don't think they were. I don't think I ever saw one——

Q. Did you see them operating?

A. I saw them blowing away.

Q. Didn't they seem to be doing the business?

A. They were doing the business, but taken at the price
4699 it is assessed at, a depreciation of 25 per cent. seems to me very small.

Q. I am trying to find whether it is small or not, and I am therefore asking you whether those four forges did not seem to be doing the business for which they were designed.

A. I don't think there were but two of them in operation. I did not notice any——

Q. Did you notice any outward evidence of decrepitude, did you?

A. Yes, I did.

Q. Well, what was it?

A. A geenral woe begone, played out condition.

Q. Bellows broken?

A. Have you ever been——

Q. In a blacksmith shop?

A. In a blacksmith shop.

Q. A great many of them.

A. They look dirty all of them.

Q. Yes, that is likely.

A. But these were not anything recent, they were not even blower forges, but old bellows type.

Q. No matter what the type was. We are taking the type as we find it. I ask you if these four forges were in condition to operate, and if two of them were not operating?

A. I think two of them were operating.

Q. Did you observe any difference between the two that were operating and the two that were not?

A. No, not so particular as that.

Q. You have said the four anvils were all right. How about the set of blacksmith tools, were they not all good quality so far as you observed?

A. I took it from the general appearance, of course, I could not pick up, in the time I had, every piece of tools, and I don't suppose any person would, but I took it from the general appearance.

Q. Did you examine any of the tools to see whether they
4700 were of the proper material and were still fit for use?

A. I looked at them as narrowly as passing through and spending ten minutes in the shop would allow.

Q. Tell me which tools were not in good condition and proper for immediate use?

A. I am not certain that any of the tools could not have been used, or they would not have been worth anything.

Q. Tell me which tools were not in good condition and not ready for immediate and efficient use.

A. Well, I will—the four sets of blacksmith tools, of course, we know they wear out——

Q. Of course, they may wear out, but I am talking about these tools there as they are now, Mr. Edgerton. Won't you tell me which of those tools were not in good shape and ready for efficient and immediate use?

A. I do not say that they could not be used. Tools may be very much depreciated and still be useable. I have seen——

Q. Did you observe whether there were any chisels there and whether they were excessively blunted for use or anything of that sort?

A. I did not notice the chisels as particular fixtures.

Q. The grindstone seemed to be in good shape, didn't it?

A. I do not look at it in particular, I looked at things generally.

Q. We will pass now to the condenser house. I think you agreed with Mr. Mayer in $29,106 on that and also——

A. No, I say that I could not make a measurement of that because they would not let the men do it. There is a number of things I could not personally pass on in the inspection, and I got two young men to go and look into it more particularly and make measurements, and they were not allowed to do so, and that is the reason I could not calculate that.

Q. Yes. That was not our fault. Now, let us take——

4701 Mr. PAGE: I don't know whose fault it was.

Mr. MATHEWSON: No suggestion or notice was given to us about a thing of that sort. If it had been, the thing could have been arranged. You cannot expect us to allow people to wander around our office around through these plants without authority or credentials.

The WITNESS: The young men telephoned about it, is all I know, and they sent the men away.

Q. Let us take the small purifier house, one set of four boxes, 16 feet by 25 by 3 feet 2 inches, 20-inch connections, 24-inch cups and 20-inch center seal supports and two hydraulic operator cranes on tracks laid on floor. You give a value of $13,464 as against $16,828 by Mr. Mayer, and besides that you suggest 10 per cent. for depreciation. Were not those boxes in good shape so far as you could observe outwardly?

A. No, they are somewhat damaged. The covers show signs or rusting at the water line, and I inpected those a little more carefully, and I thought a depreciation of 10 per cent. was not too much on that work.

Q. How many pounds did you assume there were of material in those items in the small purifier house?

A. I only calculated that small purifier house as minutely as the data would allow me to do. I could not get any closer.

Q. How many pounds of weight did you assume there were?

A. I calculated at 30 pounds to the square foot, 13,200 pounds

with an addition of 10 per cent. for the flanges and sides, 82 feet and 3.16 feet, 15,540 feet, 67,290 pounds, I put the cover in at 10 cents. I took 8 pounds per square foot as the weight of the cover. I suppose that is in excess.

Q. How many pounds all told do you figure it?

A. Well, there are different classes of work there. There
4702 is wrought iron and also cast iron and I am trying to separate it here. It is rather mixed up, because I did not expect——

Mr. PAGE: I suggest that he can give his computation right through, if you wish, it will be shorter.

Mr. MATHEWSON: All right, if it will be shorter. What I want to know was the number of pounds here divided into wrought and cast iron and what you computed the price per pound.

Mr. PAGE: Supposing you give your computation beginning as you have it there.

The WITNESS: That is the way I was figuring it. Wrought iron top and sides of cover, area 442 feet, sides 164 feet, 606 square feet at 8 pounds a foot at ten cents a pound, that is the data on the cover.

Q. How many pounds would that make all told?

A. I did not add the wrought iron into the other work. I do not do it and nobody does.

Q. I know that. I asked you to give me the number of pounds divided between wrought and cast iron.

A. You understand this is all on one box?

Q. Well, add it all together, wrought iron and cast iron together, and the price per pound at which you computed.

A. Cast iron I took at $80 a ton, four cents, $1,883.90 is the cost for one box, and it appears that $533.20 is the wrought iron work. That brings it to $9,535.60. Supports, $1,600, $11,135, and the frames, bulk, $1,009.60, making altogether $12,240.20 and I add on that 10 per cent., $1,224, making $13,464.

Q. Do you take 30 pounds to the foot regardless of the size of your cover?

A. Well, the cover I only take as 8 pounds, I took 30 pounds on the cast iron.

Q. You did not get those figures from the Logan Iron
4703 Works, did you?

A. No, I did not. I did not get any figures——

Q. Would it not make a difference in your calculations if you were informed that Mr. Logan testified that those boxes would cost about $16,000 or practically what Mr. Mayer's figures were?

A. Well, constructor's figures are always a little safer on their side than the engineer's, and generally the engineer's figures are a little lower than a man who is taking contracts, yes. But I will say this, that I have made estimates on a great deal of work and I don't remember a case where the work was not taken at below my estimate, but they were made in a more careful manner than this, in regard to having drawings and absolute details throughout, which makes some difference. I did not have an opportunity to verify these measurements, and might have left some things out.

Q. You understand Mr. Logan did not have an opportunity to verify the measurement but simply took——

A. Well, he lumps things in his head, I know he does things pretty fast in his head.

Q. A very bright man, isn't he?

A. Very bright. I am not as bright as he is at figures.

Q. Consider the boiler house. One locomotive boiler 35 horse-power $1,400 you give as against $1,918 for Mr. Mayer. Did you give a valuation of that particular locomotive boiler and tubes or of a locomotive boiler and tubes which you thought would do the same work?

A. Well, I applied—a locomotive boiler does not differ one very much from another. It is just simply the name as applied to a boiler that has a locomotive fire box and a little more expensive construction than——

Q. As a matter of fact locomotive boilers produced by some concerns are more valuable in the market than locomotive boilers
4704 produced by others, are they not?

A. Oh, yes, there is skimping work done on all sorts of work.

Q. As much as 30 per cent. difference in the quotations of boilers of different makers?

A. A man gets a reputation for fine work, and he can charge a little more for it if he can get it.

Q. And the boilers of some makers seem to stand better and be more valuable than the boilers of other makers, don't they?

A. Yes. I have my preference in regard to makers of boiler works, and would give somewhat more for their work than I would for other makers.

Q. Take the valve house, 2 No. 9 American Meter gauges, 1 large American meter gauge, 1 No. 8 Bristol recording gauge and 1 Pressure indicator. You put them all together at an original cost of only $89?

A. Yes.

Q. As against $335 for Mr. Mayer. Now, did you price No. 9 American Meter gauges of any maker before you took the stand?

A. No, I have bought so many of those things I just took my own figures on them.

Q. What is the market price now for American Meter gauge No. 8?

A. Well, that means a 9-inch needle.

Q. Yes, nine inches?

A. Well, they make several grades of gauges. There is a gauge made for a photometer——

Q. Well, meter gauges made for the purpose for which these were used?

A. Well, that is a very ordinary arch gauge, and I put them down at $12 apiece. I did not put any depreciation on them whatever. I took them just as they were.

Q. Well, one large American meter gauge, is $45 a fair price for a large American meter gauge?

A. That was a large show gauge, you could see at some distance.

I don't think it would make that amount of difference. I
4705 put it at $20 including depreciation. I think it was just made in that way to see a little further off.

Q. Can you name any concern which makes an American meter gauge of that size and quality for $20?

A. I don't think they would sell it new for that, no.

Q. Don't they sell them new for forty or forty-five dollars?

A. Yes, a first-class gauge.

Q. What concern would be the proper concern to get the price from?

A. The American Meter Company for the American meter gauge.

Q. Let us take No. 1, 8-inch Bristol recording gauge, how much did you allow for that?

A. I allowed $50 for that, that is $5 more than for my fine French recording gauge.

Q. The pressure indicator, how much did you allow for that?

A. $5.00.

Q. You allowed nothing for anything except for a lever or something which they——

A. A signal key and a ticker.

Q. You did not allow anything for the connection between that and the point where the indication was made?

A. I tried to do that. I asked the young man where the wires went and what there was of it, too, but he did not know beans about it.

Q. It certainly would be more than five dollars each if everything was considered?

A. It might have been. There might have been a mile of wire in there.

Q. And what it would cost to install that wire, or the method of its installation, you had no information of?

A. No, I tried to get it, but could not get it.

Q. Let us consider these coal gas stacks of 30 benches each and the coal gas stacks of 24 benches. Where are there in the United
4706 States any regenerative furnaces in accordance with your definition as to the change of air current from cold to hot flues?

A. I don't know of any. I have not seen one—that is——

Q. Do you mean to say in modern construction retorts are not placed over one another?

A. That is a very poor construction.

Q. I did not ask that question. I asked you whether in modern present construction retorts are not frequently placed one above another?

A. They frequently are, but I am positive on that point.

Q. Don't you think there are as many with retorts one above another, as with retorts drawn in?

A I think on account of the way in which they are put in, I think it is likely there are as many, perhaps more.

Q. Is it not true there is an advantage in regenerative benches to have the combustion space between the retorts wide?

A. No, sir, on the very contrary.

Q. You think that is a disadvantage, do you?

A. Yes, you might as well——

Q. Is it not a standard construction, one retort above another if charging and discharging machines are used?

A. It comes handy for that purpose, but the charging and discharging machines can be used just the other way, only that you have to move the machine a little for the retort to accommodate putting it into the retort, where there is one right above the other, it is convenient for the men.

Q. It is more convenient to have them one directly above the other where you are using charging and discharging machines, isn't it?

A. It is a little handier for the men. I don't consider I would give up much for their convenience on that score.

Q. Does it not make a great difference as a question of
4707 economy from installing new benches whether you are starting a plant *de novo* or whether you have an existing plant which is still in good working order?

A. Do you mean whether it is more economical to run an old plant?

Q. No, does it not make a great difference as to the question of economy from installing improved benches whether you are starting *de novo* or have an existing plant which is still in good working order?

A. There is a little trouble in starting up new works, certainly, but after you get it once gaited as we call it, and get the hang of it——

Mr. PAGE: I don't think you catch the question.

Q. No. But if you throw out your old benches you lose so much property, if they are in working order, don't you?

A. Yes.

Q. If you purchase new benches to put in their place, you are either increasing your capital or are presenting a large charge for depreciation which comes out of the consumer of your product finally, that is so, is it not?

A. The relation of the bench-work, I don't exactly catch the idea, I must say.

Q. If you have old benches and desire to substitute new when you throw away your old benches it is so much loss of capital, and when you put in your new business, that is a new expense, that is right, is it not?

A. That is the repair, all bench-work is charged to repairs.

Q. No, we are assuming the benches are discarded and not repaired. You suggested putting in some other form of benches. I say if we have benches which are still in good working order and you cast them out and put in a new type of bench you are losing capital, you are destroying it to a certain extent, are you not,
4708 and putting in a new investment?

A. Yes, but the advantages are better in comparison with the disadvantages.

Q. But you are increasing your capital upon which you have to pay a return or else are charging a large sum to depreciation which

comes out of the consumer of your product ultimately, is not that right?

A. Yes, but in this case we divide that. I find that the stack which had to be altered to accommodate an improved bench, and which has been altered there, by the way, in this very retort house, when you get in with the half depth bench, that when the stacks are rebuilt, they could just as well put in the very best setting as to put in their old setting.

Q. Yes, I am not defining the amounts, I am simply calling your attention to the fact, and asking you if it is not the fact that the installation of new benches is more of a problem where you have old benches installed and still in working order than it is where you are building a new plant with no old benches to discard?

A. Yes, it is to this extent, that you have to tear down in the summer time and rebuild your stack, and it is more troublesome and involves tearing down as well as building up. But as all economy in gas production has almost centered in the retort house, the gain is very much greater than any loss conferred on interest and on capital.

Q. You have said in New Orleans they obtained their 5.25 to 5.30 feet per pound from the coal there used. Is there not a great difference in the quality of the coal as to the production of coke?

A. Yes. I see the same mines entered into the quality of your gas coal as we used to get in New Orleans, apparently. There was a quantity of the same quality of coal.

Q. You have not tested any of our coal, have you?

A. No, you seem to have good coal.

4709 Q. Don't they use the same kind of coal here that they use in Newark when you were there, after you left New Orleans?

A. I visited Mr. Vanderpool in Newark many times, but I was not more than cursorily acquainted with the operation of the works.

Q. You did not have any part in the management of the Newark works?

A. No.

Q. How much per bench did you allow in these four coal gas stacks of thirty benches each?

A. For replacement?

Q. No, for cost, for reproduction now?

A. For putting in a new setting, I allowed $450. The mason told me that the Consolidated could buy material so much cheaper they could do it for $350.

Q. What mason was that?

A. Well, I don't like to involve the mason in trouble.

Q. I would really like to know because we would like to go to the mason and get our work much cheaper than other people?

A. That is the trouble. He said you could do it one hundred dollars cheaper. He said you get it $100 cheaper.

Q. I won't press you for the name of the mason unless you want to tell it, but I ask you to?

A. I don't know. They might go to him and might not.

Q. You have never done any masonry work in New York City yourself, nor never had a contract for any?

A. Not in New York City, no, sir.

Q. Well, go on then if you will, and finish the answer?

A. I say for renewal benches, $450, and for the stack or oven work and iron work, it would amount to about one thousand dollars a bench.

Q. Does that apply to a renewal and reproduction of the benches entire, including the arches?

A. That includes arches for thirty benches, yes, sir.

Q. The whole thing, benches and arches?

A. No; that is just the arches.

4710 Q. Well, how much per bench for benches and arches altogether? In other words, four coal gas stacks of thirty benches each, fifteen back to back, six retorts to bench, direct fire, 12 by 21 inches by 8 feet 6 inches, with an arch six feet, division wall 14 inches, and wall 3 feet 2 inches, length of stack 112 feet; what is the total for one of those benches, including everything that I have just recited, and the iron work, including setting?

A. $1,417, I think. I have not calculated it at per bench, but that figure appears to be the division by thirty of the total amount or the cost of the stack.

Q. You said the iron work cost $1,000, did you not?

A. The iron work of stack; the iron work of ovens or stack. We call a collection of ovens a stack, and that is including iron work. If you want the details: door, $180; mouth pieces at $25.00, $180; stand pipes at $10, thirty hydraulic mains at $60; thirty settings at $450; bars and door frames and ash pans make up the balance.

Q. So that your total valuation is $42,500 per stack?

A. Per stack.

Q. And four stacks I figure would be $170,000, do I not, instead of $160,000 which you gave?

A. You are right; there is a mistake there. Yes, $170,000.

Q. Are your prices based on New York labor prices for masons?

A. Yes.

Q. How much did you allow as a rate?

A. I took this from a man that did bench work for me here, a contracting man, and he offered to do it for that.

Q. What is the rate of wages?

A. I don't know what he paid his men.

Q. Do you know the rate of wages for men in New York?

A. For that kind of work I paid $6 a day.

4711 Q. Do you know what the rate is in New York City according to the Union—not the Central Union?

—. No, I did not go further than to find out from this contracting man what he would put in benches for.

Q. And you assumed, too, in this computation that the Consolidated Gas Company would obtain its material at lower than the general market price, did you?

A. $100. He stated that the Consolidated would obtain the material $100 less than he could get it; $100 per bench.

Q. Less than he could get it?
A. Yes.
Q. And you have assumed that in your computation?
A. No, I have put it at what he could get it, $100; they would save $3,000 on the job compared with what I computed.
Q. You have not made any reduction on account of the supposition that the Consolidated could get it for less than the usual price?
A. He was very fixed on that price. He seemed to talk very feelingly about it.
Q. You did not want to give his name?
A. I would like to. I will ask him, however.
Q. You have valued at $36,500 the one coal gas stack of 24 benches which Mr. Mayer valued at $58,800 to reproduce new. On what basis did you figure to get that result?
A. I put the prices on those benches at $1,500. I suppose that that is owing to a correction I made on the other from getting the amounts paid, and I suppose that would be—well, taking into consideration everything, about $100 in buying material; I suppose it would cover it, but I took that at $1,500. I know there would be more than that difference between that and the smaller retort; not much more. I think the advantage of the Consolidated in buying material would cover it.

4712 Mr. PAGE: Well, eliminate that, and if you have got to change your calculation, do so.

The WITNESS: The difference was in the calculation of the price of brick work laid. I have charged for No. 1 brick for building stack. I think I will make this $200 difference on a setting.

Q. So your $36,500 would be changed in that event to what?
A. $40,800.
Q. Now, that was reset in 1906 and you deduct nothing. Do you observe that of the other stacks one was wholly reset in 1904, two in 1905, and one-half reset in 1904?
A. Well, I never heard of benches being set in that way. They do not take and let down a whole range or benches because one "busted" up, they let down the ovens that are out of order, unless it is for isolating it, but drop it out as it becomes so that they cannot mend it.
Q. But, did you observe that statement in the schedule you have?
A. I observed that statement. I did not agree with any such manœuvering.
Q. Well, you do not agree with that statement, you do not believe that it is so; that is the point, is it?
A. I do not believe benches are renewed in that way.
Q. And if they were renewed within the last two years, sixty-four stacks, then there would be no depreciation such as suggested?
A. Certainly there would be a depreciation on running a stack; that is a current depreciation; that is allowing a long lifetime to such benches, of three years, and taking a number of them I think it is a moderate allowance.
Q. They seemed to be in good shape, didn't they?
A. Well, there were "all sorts and conditions" of benches there;

those that were dead, those that were getting that way, and some of them were ready to "give up the ghost," as I saw them, that were in operation.

4713 Q. That were in operation?

A. Yes.

Q. Those that are being used now in making gas were ready to "give up the ghost"?

A. Yes, they were about dying out, I judge that by the leakage of the retorts, shown by the gas coming out of the chimneys, and the condition of the front of the benches from throwing water on, quenching the coke, and quite a number of indications as to the state of the benches leaking in the retorts.

Q. At the same time you know they are producing more gas at the 14th Street plant of the required candle power than they ever did before in their history, or didn't you know that, in these poor retorts? Did you know that? Wasn't that your information?

A. No, I didn't get that information from what I saw there. I have been around retort houses too long. There is a third——

Q. And if it makes gas in large quantities and of the required candle power your theory is that it ought not to, considering their character?

A. It might have been worse than it is now. That is true. I do not dispute that.

Q. These figures that you have now given are your final values then as to these four stacks of thirty benches and the one stack of twenty-four benches, are they?

A. Yes, sir; subject to any error in computations. I have run over these computations only once and have not had time to verify any such great number of them, and I would like to have the privilege of going over the arithmetical part; but the basis of it is correct.

Q. You speak here of two tower scrubbers, 20 feet diameter by 84 feet 2 over all, and make some observations on the use of those scrubbers. Isn't it true that tower scrubbers are valuable in conjunction with so-called washer scrubbers, being used before the latter,

4714 for the purpose of taking out the carbonic acid and sulphureted hydrogen by means of the ammonia?

A. Well, there is a rumor to that effect. I have heard a great deal of taking out ammonia with the carbonic acid that is in the gas and having them unite, but they fly apart, they do not stay in that shape. The ammonia is volatile. In fact, I do not think it can be claimed at all.

Q. Did you ever try that?

A. Yes.

Q. In your own experience?

A. Yes, I have been through that I guess about——

Q. Well, did you ever try tower scrubbers for that purpose?

A. I instituted tower scrubbers; I am the inventor of them.

Q. You do not mean to charge us with negligence in purchasing something you invented?

A. I put them in New Orleans first and they were taken to England and brought back here.

Q. And you think they are not a good construction?

A. I thought at the time they answered very well to take the ammonia out of the gas, but as far as saving the ammonia to the best advantage I do not think they do. The ammonia can be taken out by a better way.

Q. Now, did the $36,195 which you gave as the cost of reproduction, include everything in the "yard" at 14th Street, where the two tower scrubbers are? Does that $36,195 include everything except the foundations?

A. I took simply the weight of the scrubbers and the appurtenances as given here.

Q. My simple question is whether your valuation includes all the items under the term "yard" except the foundations, for which you gave a separate valuation? I assume that it did.

A. Well, the trays, I don't know whether that is calculated there. If those are iron trays I suppose it is included in the weight of the iron. If they are wooden trays, which I doubt, why they might be extra.

4715 Q. Now, let us take the next item, foundations, 4 feet thick, 34 by 64 and so forth, supported on 300 piles. What length did you assume for those piles in your computation?

A. I took them at $7 a pile.

Q. It makes a difference, the length of the pile, doesn't it, as to the cost of the pile and the cost of driving it?

A. Well, that is a pretty expensive pile. I took the highest price that I saw given for New York work in a number of instances where New Yorw work was mentioned. I will refer you to Gillette——

Q. How long piles did you assume?

A. The ordinary length of pile that it would take to support that weight. It depends on the friction of the ground. I suppose 35 or 40 foot pile would do.

Q. Did you assume a 35 or 40 foot pile?

A. No, I only assumed a cost of $7 apiece per piles.

Q. Did you include the cost of driving as well as the cost of the pile?

A. I took $3 apiece for driving the pile; sawing off, $150, timber capping, $450.

Q. In figuring the arches of your coal tacks, how many bricks did you assume that a man would lay of that character of work in a day?

A. This man told me that he would take it for that.

Q. No, that is not the question?

A. I put the construction up to him in sizes and dimensions, and everything about it and asked him what he could get the bricks for and lay it for.

Q. The question was how many bricks you assumed a man would lay in a day in that character of construction?

A. Oh, he would not lay more than—if he did it carefully he would not lay more than eight hundred bricks a day.

Q. Did this man to whom you were talking, and whose
4716 name is not stated, see these particular stacks and arches?

A. He knows them well; knows all about them.

Q. Did you take him to see them?

A. No, sir.
Q. Is he familiar with them?
A. Perfectly.
Q. Now give us his name?
A. Well, it would not be fair for me.
Q. Did this man figure on using union labor, do you know?
A. This man is one of the best masons I know and I don't know whether he uses such labor as is current. I suppose he uses union labor.
Q. You don't know?
A. That is a matter I did not inquire of him.
Q. Referring to this Isabell-Porter scrubber in the scrubber house, your valuation for original construction is the same as Mr. Mayer's. Doesn't that seem to be in good condition?
A. Yes, the only thing about the age of that in depreciation will have to take place inside. I have given that a lifetime of seventy years.
Q. You don't know in any case, do you, or in reference to any piece of apparatus which you have valued to-day, how much had been expended in repairs or replacements or renewals on it by the Consolidated Gas Company since its original construction?
A. I know the general results.
Q. Won't you answer the question?
A. I saw the vouchers and repairs, and what they spent the last year, every one of them.
Q. (Question repeated.)
A. This identical apparatus?
Q. Yes.
A. Well, I don't recall.
Q. Well, do you know how much was expended in repairs or renewals upon any particular piece of apparatus that you have valued since its original erection?
A. No, I cannot say that I can identify where the repairs went; that is the trouble. We could not.
4717 Q. Well, you were not one of the accountants on the books, were you?
A. No, I was one of the Advisory Board of Engineers.
Q. Appointed by the Corporation Counsel or somebody else?
A. Yes.
Q. How many pounds of material did you estimate there was in the air condenser in the retort house annex, in computing your valuation of $15,067?
A. The statement I have here is 112 feet long and 8 feet——
Q. Your description is doubtless all right, but how many pounds did you assume?
A. Well, there are 163,050 pounds of castings in that part, that is the rectangular shape at the bottom; cast iron pipes 132 feet, 74,000 pounds. No, I made a mistake; it is 132.66, 20-inch pipes, 74,000 pounds; 264 flanged end on the pipe, and 264 flanges on the faced joints on the rectangular vessels in it, and the 6-inch cast iron pipe, 18,500 pounds. You see I have not allowed, therefore, for the flanges and that amounts to——

Q. Well, without going into great detail, Mr. Mayer's figures are about $1,000 more than yours, that is $16,335. Allowing for the flanges, his figures would be about right, wouldn't they?

A. We differ very little on that.

Q. Wouldn't you be willing to accept his figures as far as allowing for the flanges? Without special computation, was his about fair?

A. He computed from better information, drawings and one thing or another of that sort. I should, yes.

Q. Referring to the boiler house and well, one vertical boiler, 37-inch, 6 feet 9 and so forth, you computed $250 on the horse power. If you computed on the dimensions, would any different result be reached in your view?

A. Well, I took a look at the dimensions and it seemed in
4718 excess of the thirteen horse power, yes, sir; but I did not compute it.

Q. Well, assuming the dimensions to control and the amount of material necessarily involved, assuming the dimensions to be right, you would not quarrel with the $350 valuation of Mr. Mayer, would you?

A. Well, I don't think it would make any such difference as that.

Q. Well, it would be $300 in that case?

A. It would be a lump figure. I would have to really calculate it.

Q. I know, but it is a small item and I only ask you generally.

A. I suppose the difference might amount to $50 on the size and being larger in horse power. Boilers are allowed in horse power at different rates.

Q. Does that include connections and erection?

A. Well, the price of the boiler includes all the trimmings and gauges.

Q. Does it include the erection or simply the delivery?

A. Well, that depends on how you make it.

Q. Yes, I know, but in your estimate?

A. Well, I considered that they deliver—that they will deliver a boiler for that; yes, sir.

Q. And then the erection would be something to be added by the company in the final cost, wouldn't it?

A. That is a vertical boiler standing on end, those little boilers like that, so I do not figure very much for erection.

Q. Whatever it is; it might not be much. Wasn't that boiler apparently in good shape, as far as the outside appeared?

A. There is a whole outfit of boilers which had a worn aspect; it looked as if they were pretty well along in life.

Q. In what way did they look worn?

A. Doors and such things as show the wear and tear, like furnaces, ash pans.

4719 Q. Was it in operation?

A. It had a banked fire in it.

Q. Then it looked as though it had been in operation?

A. It looked as if somebody was getting it in operation, yes.

Q. Look at the boilers above in the boiler and engine house; $1,100 for 55 horse-power engine you give, with a depreciation of $600. Do you mean to say if an engine had depreciated to between 50 and 60 per cent. it could be used with safety?

A. You can use an engine up to the time——

Q. This is a boiler.

A. Oh, a boiler. I thought you said engine.

Q. No, 50 horse-power vertical boiler. Do you mean to say you think that boiler if still in use would have depreciated $600 on that $1,100 original value?

A. Well, I thought the boiler was pretty nearly extinct, yes.

Q. It would be difficult, wouldn't it, to get an insurance company to insure a boiler after careful inspection if it was deteriorated as much as that?

A. It would. They would probably cut down the pressure that they would alow on such a thing as that.

Q. Did you learn what pressure was carried?

A. No pressure at all.

Q. It was not in operation at the moment you saw it?

A. No, sir.

Q. Now, about the 50 horse-power? Two cylinder——

A. I think this is a well—maybe I was mistaken on that.

Q. Under "boiler and engine house," the first item, one 55 horse-power vertical boiler, 5 feet 8?

A. Yes, I recognize that by that oscillating engine. It was the antique——

Q. I am talking about the 55 horse-power vertical boiler?

A. The engine and boiler was certainly a very antiquated
4720 type. I have never seen anything in operation quite so old for many years.

Q. Then this was in operation, was it?

A. Well, I say that the oscillating engine was in operation. I took it for the well boiler, which is a boiler house and well just immediately beneath in connection with the well.

Q. Was this the boiler of that oscillating engine?

A. Yes. There was one engine there that took steam from across the road. However, that is not the one. They had a boiler but it did not boil; they were taking the steam from elsewhere.

Q. Now, in the boiler house below I have one boiler four feet by ten feet three; tools for coils, valued at $360 on the horse power, you say. Wouldn't that engine, taking its dimensions and the amount of material, be worth more than $360 if there is nothing said about horse power?

A. Yes, I think that would be a thirty horse power engine at least.

Q. And did you observe that Mr. Logan had accepted Mr. Mayer's figures as to valuation on that?

A. No, I did not look into Mr. Logan's figures at all.

Q. If he had, that would influence your judgment to some figures, wouldn't it, as to values?

A. I don't know. The more they agreed in values, the less influence it would have.

At 4:55 P. M. adjourned to December 7, 1906, at 10:30 A. M.

Last Exhibits:

Complainant's, 257.
State's, AAA.
City's, 101.

4721 Circuit Court of the United States, Southern District of New York.

CONSOLIDATED GAS COMPANY OF NEW YORK, Complainant,
vs.
JULIUS M. MAYER, as Attorney General of the State of New York; WILLIAM TRAVERS JEROME, as District Attorney of New York County; FREDERICK E. GUNNISON, JOHN C. DAVIES, and LUCIAN L. SHEDDEN, Constituting the New York State Commission of Gas and Electricity, and THE CITY OF NEW YORK, Defendants.

Before Arthur H. Masten, Special Master.

NEW YORK, *December* 7, 1906.

Met pursuant to adjournment.
Present: The Master, Mr. Mathewson, Mr. Page, Mr. Burr.

4722 Continuation of the cross-examination of HENRY H. EDGERTON.

By Mr. MATHEWSON:

Q. Under boiler house at 14th Street you valued one 50 horse-power, two-cylinder, oscillating engine, including cast-iron walk around the engine, at $1,700, but you deduct $700 for depreciation on the boiler of the engine. Did not that appear to be in good condition, so far as outward appearance went?

A. I think that depreciation was on the oscillating engine and boiler combined.

Q. I understood you yesterday to say that the depreciation was on the boiler, but I understand you to-day that it was on everything combined.

A. Yes, it was said to be built in 1882.

Q. Did it not appear to be outwardly in good condition so far as you could observe?

A. No, I could not say that it had the appearance of being in first-class order by any means.

Q. What was there out about it that you saw?

A. Well, I don't remember at present. I took the whole thing in conjunction; I thought it was the most antiquated arrangement I had ever seen lately, anyhow.

Q. Was it because it was antiquated that you made this deduction, or because it was physically deteriorated, so far as you could see?

A. A thing that had been in use that long, of course, had got internal deterioration that would not show altogether on the outside. We know that——

Q. But I am getting at what you saw, Mr. Edgerton, and not what you assumed was the condition on the inside. Is it not true that so far as outward appearances were concerned, disregarding the question of antiquation, that the machinery seemed to be in good condition outwardly?

4723 A. I don't believe that I could have put that depreciation on it unless it was in pretty poor shape, because——

Q. Can you tell what it was that attracted your attention as being out of order about it or as being worn out?

A. I think, in the case of that engine and boiler, I called the attention of Mr. Lacombe and Mr. Marks to the appearance; it seemed to me to be very much depreciated.

Q. I am trying to get at the exact feature which was not in good repair or in good order or showed wear and tear. In other words, what was it that seemed to be deteriorated or depreciated in your eyes?

A. Well, throughout, the oscillating engine had a worn-out appearance. I could not particularize in what particulars, because I spent probably ten minutes in looking over that thing, and still I could not at present, there are so many engines and boilers to examine there. I could not tell in what particular that I considered it out.

Q. That, I think, covers everything which you commented on at 14th Street regarding which I wished to question you, except the small holders. You speak of six small holders.

A. There were eight.

Q. Eight, yes.

A. Yes, six in one yard and two adjacent.

Q. You say those holders were used up; is that the expression you used?

A. I don't think I used that expression. I think that I stated that the holders were of such small capacity that they were of no account for a business so immense as the Consolidated.

Q. But, leaving that out of the question for the moment, were not those holders in good condition when you saw them?

A. Well, there were places where the tar had scaled off; it did not look so much out of condition, as I judged from the fact,

4724 being grounded, that one was blocked up to keep it from going down into what I took to be either mud or slime at the bottom of the tank. When I see a holder fixed so as not to allow it to settle down to the full extent on the blocks, I know that there is something down there that may possibly stick to it, so when they attempt to raise it it will make an extra pressure.

Q. Well, so far as the shell of the holder itself was concerned, it seemed to be in good condition, did it not, except that pieces of tar had scaled off here and there?

A. Yes, there is not any appearance of its being out of condition further than that.

Q. And you say they were being repainted with tar when you were there, is that right?

A. Yes, they were painting them with tar.

Q. You have no knowledge that those holders are permanently out of use, have you, or are not being used in the times of large production and output?

A. It is now a time of large production, and when I saw them out of use for several days, and knowing also that the using of them would be of no account for such a business as the Consolidated has, I took it that they were laid out permanently. Also, the fact that they had been settled down to the bottom of the tanks and the water line having been impressed on them for a space of eight or ten inches——

Q. Well, the fact they were being repainted with tar would indicate, would it not, that they had not been abandoned and put to scrap?

A. Well, I say this, that no one paints over with tar in the winter time; tar is a substance that is only applied to holders in the summer, on a hot day. We raise the holders on a hot day and apply the tar in order to let it bake there, and it is an extremely unusual thing—in fact, I have never seen a holder painted with tar in the winter time; it is so long in setting that it would throw the
4725 holder out of use anyhow. After a holder is painted with tar it has to be kept up long enough or else it will blister up when it is let down into water, and that alone would throw it out of use for the time it would take to dry off.

Q. And how long would it take to dry off?

A. If the tar was not thinned——

Q. Well, assume that it was thinned——

A. It was not thinned, this was daubed on, thick tar. It might take two weeks to dry thoroughly.

Q. Now, Mr. Logan states that the cost of reproduction of these holders to be $180,000, and Mr. Mayer says it would be $178,885. Is it fair to assume that the cost of reproduction of those holders would be about $180,000, as these gentlemen testify?

A. Holders and tanks? Yes, combined.

Q. No, but this valuation is given both by Mr. Mayer and by Mr. Logan as the cost of reproduction of those holders or tanks, the tanks being separate.

A. Then it is about twice too big, if that is the case. I have bids on holders now, including tanks, at that rate.

Q. How much do you calculate that those holders weigh?

A. Well, I have not made a calculation of the weight of the holders.

Q. How can you tell what the holders are worth until you know what they weigh and the amount of material in them?

A. We know very approximately the cost of a holder from the rate of its contents per thousand. Now, I have bids on a holder and tank erected at $100 a thousand capacity, smaller than that holder, and therefore that holder should be erected at $85 or $90 per thousand.

Q. We are talking about these particular holders. Do you know

how much they weigh, or have you any figures as to what they did weigh?

A. I wanted to get that, and constructed a gauge on pur-
4726 pose, but they had those holders counter-weighted so as to cut me off on that. If they would take those counter-weights off, I could tell very exactly, within two or three per cent.

Q. How about the guide frames which go with the holders, are they made of cast iron or wrought iron?

A. Cast iron columns.

Q. Would not they cost more than wrought iron?

A. They would cost somewhat more, and would not be as good.

Q. I am not talking about that. They would cost more than wrought iron, would they not?

A. I think they would. If you figure out those particulars, they would cost some more.

Q. What pressure did you assume these holders threw?

Mr. PAGE: You will remember that this witness did not value these holders.

Mr. MATHEWSON: No, but he said they were dead and out of use, and he rejected them.

Mr. PAGE: He did not have to calculate the pressure on a holder that was dead and out of use.

Mr. MATHEWSON: We will see about that.

The WITNESS: As I stated, I had prepared a very delicate gauge to take the exact weight of the holder, but the fact of their being counterbalanced prevented that being used.

Q. You have just said that these holders could be reproduced for half the amount which Mr. Logan and Mr. Mayer said it would cost to reproduce them?

A. Yes.

Q. Now, I want to know in making that reply what pressure you assumed these holders threw? You must have assumed something?

A. I went by the capacity of the holder in my estimate,
4727 and if they are an extra heavy holder, I should be obliged to——

Q. If you don't know what the weight of those holders is, you cannot tell what it would cost to reproduce them, can you?

A. To reproduce them of that weight?

Q. Yes.

A. I assumed they were ordinary weight.

Q. If you don't know what the weight of these holders is, you cannot tell what it would cost to reproduce these holders, can you, Mr. Edgerton?

A. I know this——

Q. Won't you answer that question? I think that is perfectly easy to reply to.

A. I could not calculate to reproduce exactly the weights unless I knew what they were; that is plain enough.

Q. Do you know what the wages are for laborers and mechanics for holders in the City of New York?

A. No, sir.

Q. Now, you said something yesterday about tower scrubbers not being in good construction, if I understood you. Did you?

A. I said that they are superseded in their function to a great extent by a better piece of apparatus; that was the washer scrubber or rotary scrubber.

Q. Well, now, in order to get something easy, I have a book here published in 1903, entitled "Self Instruction for Students in Gas Manufacture, Published in London," in which it says at page 44——

Mr. PAGE: I object, unless it is shown to be written by some standard authority, some one recognized as such.

Mr. MATHEWSON: The balance of the heading is, "Being Answers to Questions based on the Ordinary Grade Syllabus and Gas Manufacture of the City and Guilds of London Institute, by Mentor, Second Edition."

4728 Mr. PAGE: You might as well bring in on the question of law this "Pocket Lawyer" they are selling on the street.

Mr. MATHEWSON: That would be better than some law we get.

Mr. PAGE: That is undoubtedly so, but, nevertheless, I would rather take my law from Mr. Mathewson than from a book which was bought on the sidewalk, with no name on it, and it would undoubtedly have more weight. As I understand, you can refer on cross-examination to standard publications that are published of statements of well-known authorities, but anonymous publications set up as scientific works, I do not think can be used.

Mr. MATHEWSON: Well, it appears from the preface that the editor of the *Gas World* arranged with a gas engineer and chemist of knowledge and experience to write for that journal, that is, the *London Gas World*, a series of articles on self-instruction for students of gas manufacture. These have here been brought together in book form, so it appears that is, in book form, articles which appeared in the *Gas World*, and my friends on the other side have introduced the *Gas World* analysis of accounts as being something to bank upon. I think perhaps it is sufficient so I can ask questions about it.

The MASTER: Does it appear that the witness ever heard of that publication?

Mr. MATHEWSON: I don't know whether he has or not. It is published by the *Gas World* of London.

Q. You have heard of the *Gas World* of London, haven't you?

A. Yes, sir.

4729 Q. That is a very important and standard publication, isn't it?

A. Yes, sir; but I have not been perusing instructions for students lately, anyhow.

Q. Referring to this, I find this statement at page 44: "The tower scrubber, a sketch of which is shown in the figure upon page 45, is the apparatus most commonly employed in the elimination of ammonia." Do you still think that it is not commonly employed for that purpose, or most commonly employed for that purpose?

A. That would depend on whether they wanted to save their ammonia or simply wanted to get rid of it out of the gas.

Q. That is not the question. I ask you whether you still maintain that the tower scrubber is not the apparatus "most commonly employed in the elimination of ammonia"?

A. I don't believe there is a dozen of them in the United States.

Q. Then you do not agree with this?

A. No, I do not.

Mr. PAGE: That is English construction; maybe in England it is.

The WITNESS: In the first place, I have——

Q. Don't they use this most commonly in England?

A. In England it is still used quite commonly, because the smaller towns want to get rid of ammonia without going to the expense of trying to save it. It is a question of——

Q. However that may be, don't they get more ammonia from a ton of coal in England, as a rule, than they do in the United States?

A. I think they do, but they do not get it out of that scrubber.

Q. In spite of the fact that this is the form of apparatus most commonly employed in the elimination of ammonia, is that right?

A. Well, elimination and saving ammonia are two different things; you can eliminate a thing without saving it.

4730 Q. Passing that distinction, did I understand you to say that ammonia did not combine with carbonic acid?

A. Not a bit of it. It combines, and then any sort of a reagent coming in contact with carbonate of ammonia will throw it out of combination. I have experimented a good deal in trying to wipe out ammonia in gas by means of carbonic acid, which is also in the gas, and making it stick together, but I never——

Q. Then ammonia will combine with carbonic acid gas, won't it?

A. It will not stay there; besides, carbonate of ammonia is a volatile thing, and goes along with the gas——

Q. Will ammonia combine with carbonic acid gas?

A. It will combine with carbonic acid gas, and then afterwards disappear in the form of vapor.

Q. It will combine with carbonic acid gas, will it not? That is the question, because I understood you to say yesterday it would not.

A. Not combine and stay there in the form of carbonate of ammonia. It is not eliminated——

Mr. PAGE: Was your question general, or limited to the gas?

The WITNESS: If you want to go into the chemistry of the thing, I will follow it up.

Q. No; my question was as general as your testimony yesterday on the subject, in speaking of scrubbers. Do I understand you to say that you were the originator of the tower scrubber?

A. Yes, sir.

Q. Where did you first instal a tower scrubber—in New Orleans?

A. In New Orleans.

Q. That was in 1873?

A. In 1873; plans were made in 1871 and 1872.

Q. Was it not in 1872 that Mr. Forstall saw you in refer-
4731 ence to plans for New Orleans, the fall of 1872?

A. No, I had the plans finished in 1872. He saw me in 1871.

Q. Sure about that?

A. Oh, very sure. I can give you the exact place where I met him and the correspondence on the subject.

Q. Where did he meet you in reference to the designing of these works?

A. Fort Wayne, Indiana.

Q. Fort Wayne, Indiana?

A. Yes, sir.

Q. Was he alone when he met you?

A. He was alone. I don't remember——

Q. Was not his son with him?

A. His son was a baby then, pretty near.

Q. Was he a baby then?

A. Well, he was not anything very big when I first saw him.

Q. Was not this young man here, who is Mr. Forstall's son, with him, when he saw you?

A. No, sir; Mrs. Forstall, I think, was with him, but there was no son.

Q. Now, I have a book here, printed in London in 1878, entitled "*King's Treatise on the Science and Practice of the Manufacture and Distribution of Coal Gas,*" edited by Thomas Newbigging, C. E., member Institute Civil Engineers, author of the *Gas Managers' Handbook,* and W. T. Fewtrell, F. C. S.; you have heard of that work, haven't you?

A. Oh, yes. I had a copy of it 35 years ago, nearly.

Q. And there seems to be a history of scrubbers here. I find on page 366 the statement: "In 1848 Mr. F. C. Hills obtained a patent for an apparatus of a somewhat complicated nature, in which the 'tower,' the 'tumbler' and the 'revolving perforated arms' also cropped out;" and it appears that in 1871 Mann & Walker obtained a patent on a tower scrubber, and the tower scrubber itself, with the legend "Mann & Walker's Patent," is pictured at page 371. Now, if that be correct, isn't your assumption wrong that you introduced the tower scrubber in New Orleans in 1873 first, and that the idea was
4732 then transported to Great Britain?

A. No, sir, I don't think so. I have obtained patents on things that have not been made, and that tower scrubber was not constructed in 1871.

Q. It appears, does it not, that the patent was obtained in 1871?

The MASTER: That is what he said.

A. The patent may be obtained. That does not construct the scrubber.

Q. Then the idea of the tower scrubber or the theory of it you do not claim was originated by you the first of any one in the world, do you?

A. No, although I thought of the tower scrubber long before I built it, I can tell you that.

Q. Did you get any patent on it?

A. No, sir, I didn't think of patenting it.

Q. It appears at page 366 that the tower was employed by Mr. Hills in 1848. Was that before you thought of it?

A. Yes. It depends on what term you apply to a tower or what they mean by it. Some men might call—the idea is simply this, that the old construction of scrubbers limited them to a very limited height, and I called Mr. Forstall's attention to the fact that I had long figured that it would be a great deal cheaper and better to continue those up to a great height instead of limiting them to nine or ten feet; and I wanted to put it outdoors in New Orleans, but they thought that was too much of a novelty; but we put scrubbers thirty-three feet high, and at that time it was considered an entire novelty in the business by everybody.

Q. Now, it appears at pages 371 and 372 of this work that the Gas Light and Coke Company requested Messrs. C. and W. Walker to communicate with William Mann in endeavoring to im-
4733 prove the scrubber, and it appears that the first scrubbers constructed at the Beckton works were made of wrought iron boiler plate, twenty feet diameter and thirty feet high, being parallel cylinders from bottom to top; and I am informed that the scrubbers at the Beckton Works were erected in 1869 or 1870. Have you any knowledge on that subject?

A. I don't think the Beckton Works were completed at that time.

Q. Well, it appears in the following paragraph that soon after—that is, after the Beckton Works were constructed, the efficacy of scrubbing became the object of much consideration, and in 1871 a patent was obtained for improvements, which is the Mann patent to which I have referred.

A. No. In 1871 I had drawn it out and was engaged in getting it under contract. It follows that frequently after a thing is successfully introduced in this country, like compression of gas for cars, that it travels over to the old country, has the stamp of approval, and then there is always some Englishman crops out who thought of it before.

Q. But your first scrubbers were erected in 1872, here?

A. Yes.

Q. So that if they were erected in Beckton in 1869 or 1870, that was certainly some years before you erected any tower scrubbers here?

A. I disagree with you about the time of erecting them at Beckton.

Q. Well, assuming that to be so——

A. Yes. Assuming they were constructed before they were, yes.

Q. Assuming they were constructed at Beckton in 1869 or 1870, that was several years before you erected any tower scrubbers anywhere, wasn't it?

A. It was, but my recollection is pretty definite that the construction of the Beckton works was completed after those scrubbers were erected.

4734 Q. But you observe, do you not, the point to which I call attention, that it was some time afterward, in 1871, that the patent was obtained? That is, after the Beckton works had been constructed?

Mr. PAGE: They invited these two men to co-operate.

Mr. MATHEWSON: And then they say that the first scrubbers constructed at the Beckton works were twenty feet diameter, thirty feet high; and the following paragraph states that soon after the efficacy of scrubbing, and so forth, was considered, and in 1871 a patent was obtained, evidently after the Beckton scrubbers were erected; and the Mann & Walker patent, as you know, was obtained in 1871, and was a patent for tower scrubbers as shown in this cut.

The WITNESS: Yes; it does not make any difference about the precise form of the scrubbers.

Q. But it would appear from that, would it not, that the Beckton scrubbers were erected before 1871?

A. I don't think so.

Q. All right.

A. I think the Beckton works were finished after I finished mine.

Redirect examination by Mr. PAGE:

Q. What months are the months of largest production in a gas works?

A. Well, the months of November, December and January are the months of largest production in almost all localities.

Q. Well, applying that to the New York conditions that we have heard so much about, would that be so here?

A. Undoubtedly.

Q. And the highest load for the year has to be carried by the works in those months, does it?

A. Yes, sir.

4735 Q. And at that time is the entire apparatus that is feasible for use and maintained for use in use?

A. Everything is supposed to be in action at the time of the largest output.

Q. Well, in regard to the gas holder, if a gas holder has been abandoned for use, you would still keep that holder in sufficient repair so that it could be used in case of emergency, would you not?

A. Yes, sir, particularly if my holder capacity was only about two-thirds of the day's output.

Q. Now, this oscillating engine and boiler that Mr. Mathewson questioned you about, that was stated to have been built in 1882. Is there a depreciation that is recognized by engineers on engines and boilers, based on the average life of the apparatus?

A. Y-s, sir.

Q. And although an engine or boiler may be kept in good condition in outward appearance, still would it be depreciated by the fact that it had been in use for a number of years?

A. Yes, sir; it is bound to be depreciated beyond what is visible on the outside: the wear and tear in the cylinders, and the pistons and valves become out of order; and, although an old engine may be kept in apparent repair and good condition, it is still given out throughout.

Q. Was this taken into consideration by you when you made your valuation of depreciation, or was it based entirely upon the physical appearance?

A. I took both. Where I saw a boiler and engine not only having the appearance of considerable age, I also took into consideration the general appearance of it in regard to its repairs.

Q. Now the "built in 1882" seems to refer to the boiler. What would you say, from the type of the two-cylinder oscillating engine, as to its probable age?

A. Well, it was the most antiquated appearing thing in con-
4736 struction that I have seen in New York City. I was wondering where it could have been got from. I don't know anybody that builds such an engine nowadays.

Q. Is it a type of engine that is being built today and commonly used?

A. No, the last oscillating engine I ever saw was on a steamship about forty years ago, in use.

Q. Until you saw this one?

A. Until I saw that.

Q. This is a general question: when you throw out the old benches and build new, what is the process? How much, I mean, do you have to tear down and how much do you build?

A. Well, if we have an old form of bench in which the oven is not wide enough to make the modification required, we have to rebuild a stack, and in my opinion a stack should be rebuilt every fourteen years anyhow, unless it is an extraordinary well built stack; it gets out of order and chinks in the brick work—cracks, that cannot be very well daubed up and kept tight and leakages in the bypassage in the draft, and, therefore, the stack itself should be rebuilt before it is entirely dilapidated.

Q. Well, take it that time; say once in fourteen years or thereabouts, you would tear down the whole stack, wouldn't you?

A. I would tear down the stack and rebuild it on account of the difficulty of keeping them in efficient condition.

Q. What about this operation that you referred to that ought to be done once in about every three years?

A. That is rebuilding the ovens with retorts; three years would be a long average lifetime.

Q. What do you do at that time?

A. At that time the retorts are taken out and all blocks taken out and fire-brick to the level of the ash pan; sometimes a course or two above the ash pan may be left in up to the bearing bars; it depends on how much it is racked, and it is built up from that point.

4737 Q. Now, that removes everything then inside of the arch, does it?

A. Everything.

Q. Then if the company desired to change their construction and make modern benches at that time, it could be done with comparatively little additional expense, could it not?

A. Yes, I have seen changes of that kind. The size of the oven might limit the size of the retort, and in this case in 14th Street I see they have retorts drawn in; but the time to make a thorough improvement is in the summer time, by tearing down the stack, that is not a very expensive operation and it would be well repaid in a very moderate time.

Q. Now, the time having arrived at which it is necessary to reset the bench, you say with a comparatively little additional expense you could rebuild the stack?

A. Yes. The rebuilding of the stack is nothing formidable.

Q. And this work is done practically every summer, is it not?

A. Some of the retorts are reset each summer? About one-third would naturally be renewed in each year.

Q. Then without interruption of the supply of gas, inadequate apparatus could be changed to new apparatus in three summers, could it not?

A. Yes, perhaps even more rapidly than that if it was a matter of importance.

Q. I mean without changing the time that is now taken for repairs and that is without laying off any more of the apparatus than is now laid off in the summer for repairs?

A. That is right.

Q. Outside of the oven how much is there of a stack—of about what proportion of value does that bear, can you tell, to the whole stack?

A. It would depend a little upon the thickness of the division of the walls.

Q. Well, take this division that you have at 14th Street, which you have worked out, I understand?

4738 A. Yes; it would be about one-third, a little over; perhaps one-third of the expense would put in new stacks.

Q. About one-third additional expense?

A. Yes.

Q. Then if this fund that has been spoken of as a depreciation account that has been utilized by extensions, mains and building new apparatus, had been expended in those retort houses, some portion of it, it could have been changed into a modern up-to-date construction, could it?

A. I think so.

Q. And when I refer to the depreciation I mean the depreciation which Mr. Mathewson assumed was to be charged as against this apparatus, but had been expended in extensions and plants.

Mr. MATHEWSON: "New construction," I think was the term I used.

Mr. PAGE: Yes.

A. Yes, I should expend the money in putting in the very best order the generating plant as of first importance.

Q. How about this $280,000. I think it was that was spoken of as having been charged off to depreciation by the Consolidated Gas Company in the year 1905. Would that have been sufficient to rebuild this?

A. That would have been sufficient to have built a very much superior construction to what they have for an output such as they now make.

Q. What kind of a construction would that have given?

A. Well, that would have given a construction that would have minimized in use of coke and the output per bench, output per man.

Q. Still that does not state what kind. You say it would give a construction that would result in these economies, but I say what kind of a construction could they have put in?

A. They could have enlarged their ovens, perhaps it might
4739 have been necessary to have dropped one of them or used more at the ends to have accommodated the larger sized oven and the larger sized retort, just as they did in the case of this setting of 24 benches. Twenty-four benches occupies the space formerly occupied by the setting of 30 benches. By a proper setting of larger retorts they would make very nearly the economy of the best plants.

Q. Well, would that give you a "generative" fire, as they have got it here. I suppose it should be a regenerative fire.

A. No, it would not be possible to put in a full depth of generative bench there without considerably more expense.

Q. No, I mean by that, the kind of a bench they have got here, 24 benches is put here as "generative" fire. I believe you said it was a modification of a half depth.

A. Yes, it is a half depth; it is not a full regenerative fire. It is one that would undoubtedly economize on the use of coke, but owing to the retorts setting one directly above the other, I think that it would not have any good——

Q. No, you are speaking of this particular one now, about that construction; but I say you could build a half-depth regenerative modern retort?

A. Yes, a very good and efficient bench could be put in in that space.

Q. And it would effect a large saving in the cost price of gas, would it?

A. Yes, sir; a very large saving could be effected by increasing the amount of coal gas and diminishing the amount of——

Q. No, but what I am speaking of is, would it be a saving over the cost of coal gas produced by that plant, over the plant which they are operating now. These four stacks of 30 benches each?

A. Yes, sir; a very large saving could be effected.

Q. Now you stated in answer to a question of Mr. Mathew-
4740 son that the retorts drawn in as you have shown made a more efficient bench that where the retorts were placed on- above the other. Will you explain why?

A. I examined very fully into that question when I built the New Orleans plant, and it arose in this way, that we thought that many benches of six retorts did not give the result of my old Ft. Wayne setting with five retorts, and that led to an investigation as to the cause of the five retort bench, giving a greater production per bench and per man that a six retort; and I visited the Nassau and Brooklyn and other works, having the one retort over the other of large size and arrived at the conclusion that it was a mistake to leave the large open space above the fire unprovided with a retort capacity, and the only way to avoid this loss in a bench of sixes would be by drawing in the retorts as they went upwards in the bench until we have them within four to six inches of each other at the top, and the result of the setting was to give—a largely increased yield.

Q. That is particularly so, is it not, in the direct fire bench where you have the retort come in direct conflict or contact with the heat or flame, if it reaches that height? I do not suppose it does.

A. The retort gets right in direct contact with the radiation of heat from the direct fire. I can illustrate it in a simple way, that if you wanted to boil a pot on the stove you would set it over the fire instead of putting it on one side, and the temperature of the gases arising directly off the furnace is higher than after it has lost by radiation going up the arch. I think, however——

Q. How is it with the regenerative apparatus where they have a chamber for combustion of coal gas and the air gas?

A. Well, it is the same in that respect only I think care
4741 has to be exercised, because in managing a regenerative fire it is possible to melt everything down. I have seen arches in Washington at the gas works with the tile all doubled up with the heat, arising from the fact that you can push a regenerative fire to a tremendous temperature; but it still holds good that you want to fill up your bench space with retorts as closely as possible to get the greatest output out of the bench.

Q. So that from your experience of both types of apparatus you think that the best construction is the one with the retorts drawn in rather than the retorts set one above the other?

A. Most decidedly. It is illustrated right down at the 14th Street works. They have a new and enlarged retort set one over the other and they are lying there dead. They have been completed and had no fire in them, whereas they are firing smaller retorts which are drawn in and keeping them under fire, and keeping this improved bench with a regenerative fire out of use, and they have discovered rather too late that they were not set in right, I presume.

Q. Mr. Mathewson cross-examined you to quite a large extent upon your method of selling gas in Danbury and something as to the prices that you charged. Your remarks given here on the cost of production were not based upon the Edgerton process of gas production, were they?

A. No, sir.

Q. I mean cost of production applied to the 14th, 21st, 44th, 99th Streets and Central Union stations?

A. No, sir, I think possibly the examination in regard to the price charged for gas in Danbury has left the subject somewhat muddled.

Q. Yes, I was going to ask you if you desired to make any further explanation. I did not understand very well what your method of charge was, and I do not know as it has become very clear upon the record just what the theory is, so will you state it?

4742 A. The theory is in regard to charging for high candle power gas that every candle is worth as much as any other candle; a candle of fifteen candles is worth fifteen; a candle of eighteen candles is worth eighteen; a candle of twenty candle power is worth twenty; each candle is as good as the other with proper burners; therefore, when Danbury gas was put at forty-four candles of course the high price per thousand feet would not suit, it would

bring a prejudice of the customer against the gas, and therefore we stated the price at so much an hour and registered the hours of gas burned for fourteen candle light. Now, it takes only two feet of gas at Danbury to supply the same gas that is usually supplied by five feet of coal gas, and therefore the actual price per thousand to the consumer is higher but it has always been rated to the consumer and stated to him at a coal gas price, so he could compare his price at Danbury with prices elsewhere. That method was very satisfactory, and the same was employed at New Orleans and it was one of the most popular features in connection with the introduction of high candle power gas, because it reduces the cost directly to dollars and cents so the consumer knew what he had to pay for a given light without having to compute it by means of cubic feet. Very naturally the system was attacked to delude the consumer——

Q. Never mind that part of it. What is the effect on the bills of the consumer?

A. The effect is the bill to the consumer is less. The average output in Danbury to a consumer is 9,000 feet of gas per year, and the average water gas in Massachusetts of a number of towns of similar size would be about 19,000, and the coal gas about 23,000. In fact, the consumption of gas goes on in the ratio of the candle power always.

4743 Q. The bigger the candle power the less the consumption in cubic feet?

A. The greater the candle power the less the consumption.

Q. That is, what the consumer wants is illumination, and if he has a low candle power gas, he has got to use more gas to obtain that illumination than he could obtain with a small quantity of high candle power gas?

A. That's it exactly. The common idea of candle power is very erroneous, as it is generally supposed that a thirty candle power gas would be twice as bright as a fifteen candle power gas. As a matter of fact, the thirty candle power gas does not show any brighter at all, or very little brighter, than a fifteen candle power gas. The consumer uses only half of it to give the same light. That is really the practical effect of candle power in gas. That is demonstrated very completely in comparing the output of the Scotch Gas Companies with those of the English Gas Companies. The average bill in Glasgow being about $18.00 and——

Q. You haven't those papers here, have you?

A. No.

Q. Well, we won't go further into that. I was going to examine you later on this question of candle power. All I want to know is just exactly what the theory of the Danbury was?

A. It is simply that stated, that gas is valued on the candle power on the basis that one candle is as good as another.

Q. The cost price of coal gas is somewhat regulated by the price that you received for your residuals, is it not?

A. The cost price of coal gas is almost dependent upon whether you have a favorable market for residuals or whether they are properly marketed.

Q. What do you find on an examination of the prices received by the Consolidated Gas Company for its coke as compared with
4744 other cities that you have had experience with, and their statistics in the regard to which you have examined them.

Mr. MATHEWSON: I object to this, Mr. Master. What you can obtain for coke in other cities is absolutely no criterion of what you can obtain in any other city. You can obtain in some cities, for instances, as was testified, in Chicago, $5.50 for coke. It is utterly impossible, as everybody knows, to get that price here. It seems to me that what you can get for coke some other place where the competition with coal is different and other features come in, is absolutely valueless as evidence here. It is what coke can be sold for in New York City, not what it is worth in Chicago.

Mr. PAGE: If it can be sold for $6.00 in Boston, I suppose we would be entitled to know it.

Mr. MATHEWSON: That may be. It may be that the competition there with anthracite coal is different.

Mr. PAGE: Or it may be they apply better business methods to get their market for coke and to hold their market.

Mr. MATHEWSON: They cannot apply any better business methods than we do here.

Question allowed. Exception.

A. I have uniformly found that the handling of gas coke to advantage is dependent upon looking up the market adapted for it. I have seen in a number of places where I have been called into consultation about works that they have had piles of coke on hand and selling it at low prices. My experience with coke as fuel is such that I am perfectly satisfied that gas coke of a fair quality, usually rates $1 a ton higher than anthracite coal at the same point.
4745 It is a perfectly smokeless fuel, it ignites with facility, so that it requires scarcely more draught to burn coke than to burn charcoal, while anthracite requires a heavy draught, and it is a common thing to see coke burning as fuel with a draught no higher than two feet. The best and most important market for gas coke is for household use and heaters. For that purpose it is twice as good as anthracite coal, but in very few localities do you find people who understand the handling of coke in a household heater or what is commonly called a furnace. The fact that it requires so much less draught is apparently against it by those who handle it for they leave the draught open and burn it too fast. The fire box of the furnace wants to be kept jammed full of coke, kept up, and the draught manipulated in such a way that you have barely the width of a penknife blade in cool winter weather of draught at the bottom, and in that way you get a fire that consumes the fuel on the spot; the gases are all burned. A little draught is admitted above——

The MASTER: Isn't all this a little beyond the scope of your question, Senator?

Mr. PAGE: I think it is.

The MASTER: Unless you show that people are educated up to that. The witness admits that most people do not know about it.

Q. Then if you were handling coke in a city where they had not been instructed in this, you would apply the same methods that have been used in the introduction of gas stoves by educating the people somewhat in their use.

Objected to as improper, as to what the witness would do under similar circumstances.

The MASTER: I do not think it is very important. Does
4746 not that follow as a matter of course?

Mr. PAGE: The only point I was making was that the company had devoted a great deal of time to the education of the people in gas stoves but they have not done anything with their coke, have not sought any market for their coke or tried to make a market for it.

The MASTER: That is a matter of argument.

Q. The use of coke is not confined to that of household fuel, is it?

A. No, it is a fuel that I have introduced without difficulty into a number of other uses than the furnaces and heaters, boilers. Laundrymen, of course, take it. Brewers are very good users of coke. I raised the price of coke to a brewer in Butte from six dollars a ton to nine dollars a ton by simply showing him how to stop wasting fuel. Also in public buildings. I have never had any trouble about introducing it to any use where they have janitors who will take the trouble to manage it rightly. As an illustration, a house can be heated with five-eighths the pounds of coke that can be heated by anthracite. I have made experiments in that. I got rid of the coke not only for the companies I was connected with but for neighboring companies. Take the case of Minneapolis: they had an oversupply of coke and were selling it very cheap and could not get rid of it. I brought carloads down and introduced it in neighboring towns just to break up a corner on anthracite when anthracite was high, and when they found out how to use coke it made quite a permanent market.

Q. I think in answer to a question by Mr. Mathewson, in regard to the Consolidated buying gas, you stated that they bought gas at a higher price than they manufactured it?

4747 Mr. MATHEWSON: No; than the 31.05 cents which he said was the average of the water gas stations.

Mr. PAGE: Well, at a higher price than the 31.05?

Q. Assuming that this operation of the Consolidated goes through with its subsidiary companies as a purchaser of gas, do you find that they do pay more?

A. No, my recollection is that deducting their own profit on their own product they pay less than these other companies.

Q. Your attention was called to Exhibit 79 by Mr. Mathewson, and you started to make an explanation in regard to the figures. If you desire to explain what you said at that time you may do so?

A. The point I wished to call attention to at the time was based on the idea that it was a matter of indifference whether the money from a depreciation fund was spent on one part of the plant or whether on another. It amounted to the same and they had the same results, whereas the money that they spent should be on those parts where

the depreciation mostly occurs and where it is most important to spend it. As an illustration, the money spent in extension of mains is not as important as it would be in decreasing the cost of gas production at such stations as 14th and 42d Streets, but to make a more crude illustration: A man's doors and windows have gone out of repair; it would be more important for him to spend his money repairing them and in keeping them in order than it would be to buy a horse and buggy. It might not be the same outlay but it would be more important.

Mr. MATHEWSON: That is a very close parallel.

The WITNESS: That is not overdrawn. Perhaps I might
4748 draw a better parallel, but that in a rough way served to illustrate. Certainly if I knew how to make gas at thirty cents a thousand I would be loath to continue to manufacture at thirty-eight cents.

Mr. MATHEWSON: I do not think that was part of the question, but I am not going to move to strike it out.

Q. I just asked is there any further explanation? At the time you started to make some explanation and Mr. Mathewson stopped you?

A. I have forgotten now. I think that was the point, that it was a matter of indifference where it was spent.

Mr. PAGE: That is all I wish to ask Mr. Edgerton on what might be called the redirect on the subjects covered, so if you have any recross-examination on this subject you may proceed.

By Mr. MATHEWSON:

Q. Referring to these stacks, you said that you fixed the cost of a bench to $1,417 and the setting only $450, so that when you come to reset your benches that would not renew the iron work, which is the greater part of the value of a bench, would it?

A. Well, the iron work does not require renewing only to the extent that any modification made in the location of the retorts might require modification. You could accomplish that without throwing out everything in the plant.

Q. If you change the relative location of the retorts, it requires entirely new iron work, doesn't it?

A. No, I don't think so.

Q. Do you mean to say that it would not require entirely new iron work if you had drawn in instead of one over another?

A. No, sir; it would require modification of the iron work,
4749 it would require a new location of the dips and on top of the hydraulic, but I think that a great deal of the iron work could be utilized. Of course if one did not regard expense at all he might throw it all out and start new, but——

Q. You have said that the cost of coal gas depends in considerable measure upon what you get for the residuals. That means particularly what you get for your coke, doesn't it?

A. Coke, tar and ammonia, but the coke is the principal thing.

Q. Now anthracite coal in the West is higher than it is in the East, isn't it?

A. Somewhat, yes, sir.

Q. And coke sells for a higher price in the West than it does generally in the East, doesn't it?

A. Generally. I have seen coke sacrificed in the West at just such prices as in New York.

Q. Don't you know that the price for coke in Chicago at the recent investigation there was stated to be $5.50 per ton?

A. I think I saw something of that kind, yes, sir.

Q. And have you not known that coke sold in various cities in the West, such as Milwaukee and others, as high at $5.75 a ton?

A. That is where they had worked up a market, yes, sir. Ordinarily it is sacrificed the same as here.

Q. No matter what the reason is, the point is it does sell for those prices, or has sold for those prices; is not that right, according to your information?

A. No. I bought coke in the West at six cents a bushel at Minneapolis. That would be as low a price possibly as here. But the price of coke depends entirely upon the demand for it, like anything else.

Q. And it has sold as high as the prices I have indicated, has it not?

A. Yes, sir.

Q. And does not the gas coal in the West cost less than in
4750 the East, say in Chicago and Milwaukee and cities of that kind?

A. It depends how far West and what coal you use.

Q. Gas coal such as is commonly used in Chicago and Milwaukee and neighboring cities.

A. I think in an equal distance from a coal region it is about the same.

Q. Don't you think gas coal is cheaper there than it is in the East, generally speaking?

A. No, I don't think it is. I have paid for gas coal in the West as high as $5.50 a ton for good gas coal. It is more a question of railroad freights.

Q. And don't you know that in selling coke we have in the East to compete with pea coal, whereas in the West the competition is between coke and the larger sizes of anthracite?

A. And natural gas.

Q. Yes, and don't you know that wherever coke is sold that it has to be sold at a lower price than anthracite coal in order to make a market for it?

A. No, that is the very point I made. I can make a market for coke that will sell large quantities of it a dollar higher than anthracite coal.

Q. Is not the labor of handling coke, as compared with anthracite, much greater on account of the greater bulk and greater care required in handling it?

A. I don't think there is any particular difference. There might be a slight difference. It shovels a little easier.

Q. Will you give me the name of any management in the United States, any company, that has been and is able to get anthracite coal prices for coke at that place?

A. Yes, indeed, I can. That is just what I was getting at.

Q. Let us know what the company is.

A. Well, in New Orleans I bought anthracite coal at $7 a ton.

Q. That was in 1873, wasn't it?

A. No, that is when we changed to water gas in 1884 and——

Q. In 1884?

A. Yes.

4571 Q. Let us come down to within the last ten years.

Mr. PAGE: Let him finish his answer.

Mr. MATHEWSON: Very good.

The WITNESS: There I had an excellent coke market well established and worked up, and coke was sold at $5 a load. Now that coke in weight would produce a price higher than anthracite coal right there in New Orleans, and they were begging me for it to that extent that people waited for it to be drawn out of the retorts in order to get a supply many times.

Q. Why did you change to your oil gas process then if you were getting such enormous prices for your coke, which would reduce the price of the coal gas?

A. That was the very thing which entered into consideration and was fully considered.

Q. You know New Orleans has not made any coal gas for eleven years, don't you?

A. I know that. I changed it to water gas myself.

Q. Will you give me the name of any management in the United States of any company which is now getting prices for coke equal to the prices of anthracite coal in that place?

A. Why, I am not posted in regard to their exact relative prices now, but I know what has been and can be done where a coke market is worked up.

Q. Don't you know that many cities in the West have been obliged to and do fix the price of coke substantially below anthracite in order to get rid of it at all?

A. No, I do not.

Q. You know that anthracite coal is not used in England to any considerable extent, do you not?

A. Well, they have very little of their Welsh anthracite to use.

Q. Is it not true that in England until the introduction of water gas, coke was piled up in nearly every coal-gas plant in Great

4752 Britain because they could not obtain any market for it at all at a decent price?

A. The market of coke for domestic use in England I always understood to be a good one. Coke piles up at times in a gas works from the enormous production of gas, but it is worked off at other times.

Q. Did you not know and do you not know it to be a fact that until the introduction of water gas in Great Britain, which consumed coke in its operations, coke was a drug on the market and substan-

tially every large coal-gas plant in Great Britain had great piles of coke undisposed of?

A. They may have charged too high, but——

Q. Don't you know that to be a fact?

A. No, I do not, and I do not believe it is, either. I know that that may be the pretence for the introduction of water gas, that that makes the only market for coke, but I have been over railways in England, north, south, east and west, and they used coke entirely for their locomotives and find it a good fuel.

Q. Where all works are coal-gas works, the amount used by locomotives would not consume the entire supply, would it?

A. Well, the amount used by locomotives where it is confined to coke will make a very great inroad into it, there is no doubt about that.

Q. Have you not known or heard of cases in the West where, on account of the prices they are able to get for coke, they more than offset the original cost of their gas coal, so that the material costs them really nothing?

A. I think there are such cases, without doubt, for coke, properly marketed, will bring a surprising price.

Q. You don't know of any such prices received in the East, do you, as $5.75 per ton for coke on the general market?

A. Not, but there ought to be.

Q. Now you say that you find that the cost of gas to the
4753 Consolidated Gas Company of the gas manufactured under the agency agreement is less than 31.05c. Will you look at Exhibit 94 (handing book) and say what the cost is according to this of the gas made under agency agreements, the cost per thousand made? *A.* Is it not 34.04 cents?

A. Well, I——

Q. Well, is that right?

A. That is what that paper says, but——

Q. That is Exhibit 94, is it not?

A. Yes, but there are a great many things in Exhibit 94 that do not hold water.

Q. That may be, but is not that so in Exhibit 94?

A. It is so stated, but I——

Q. Wait a minute. Answer my question.

Mr. PAGE: He wants an answer to his question.

The WITNESS: That is stated there, yes, sir.

Q. Have you information that the Consolidated Gas Company did not actually pay 34.04 cents per thousand for the gas which they received? Have you any information to the contrary?

A. I have a——

Q. Have you any information to the contrary, that is the question?

A. I have not directly, but I have the information that that included 10 per cent. profit which they got back.

Q. Well, you thought they got that back, did you?

A. I understand so.

Q. And you do not think that the company is getting gas cheap if

it gets it at fair cost of labor and material plus about three cents more, do you?

A. I think it is getting it very cheap, but——

Q. Well, that is all I have to ask on that point. Now I am going to see if I understand your theory of depreciation correctly, and I have tried to state it as I understand it. Is this right, that,

4754 in spite of the plant being kept in the best possible physical condition by current repairs, there is in your opinion a depreciation of asset value constantly accruing which is in direct proportion to the ultimate working life of the part of the plant in question?

A. I don't remember stating it in that way——

Q. Well, is that right in substance?

A. Well, I do not get your idea.

Mr. MATHEWSON: Please read the question again. I think perhaps it is clear.

Question read.

The WITNESS: Do you want an answer to that without any explanation.

Q. Yes, in the first place, if that is your understanding.

A. No.

Q. That is not your understanding or theory?

A. No.

Q. Just state what it is in a few words, without illustration, but briefly.

A. If you refer in this to the depreciation on the plant as I have assessed it, is that the idea?

Q. No, speaking of plants generally, is not your theory that, in spite of the expenditure for current repairs, there is a constant additional depreciation accruing in direct proportion to the ultimate life of the plant or apparatus which you have in mind?

A. Oh, well, that is clear enough; yes, there is a depreciation going on.

Q. And this would be in addition to the cost of any repairs currently made on the plant and should be charged each year to operating cost?

A. No, not to operating cost, by a long chalk.

Q. Why not, if it is depreciation?

A. It is not a part of the operating expense and not so charged.

Q. And do you mean to say that depreciation of a plant is

4755 not part of an operating charge to be made up from the sale of your product in order to maintain your plant?

A. That is true. It has to be made up from a sale of the product, but it is a fund; depreciation is not a vouchered account, and it is not money spent and has no business to be included in money spent. It should be set aside.

Q. We will waive the form of bookkeeping——

A. But that is very important.

Q. But the substance is that the amount of depreciation should be charged up or accounted for somewhere, and of course it must be

taken into account in the sale of your product and covered by it so as to maintain your property?

A. Certainly, that is an axiom. I have no objection to that, only it is the way of carrying it on that I object to. It must be a fund, and not touched for anything.

Mr. MATHEWSON: That is all.

Mr. PAGE: I have sent for the book on the Boston investigation. I want to ask just one or two questions.

By Mr. PAGE:

Q. Have you examined that record of the Boston investigation, the investigation of the Boston Gas companies, with relation to the prices shown there to be received for coke in Boston?

A. I looked it over, yes, sir; I did not read the whole; that part relating to coke I noticed.

Q. Did you notice that one of those companies received $6 a ton for coke?

A. I think it was something over $6.

Q. And paid a trifle over $5 a ton for anthracite?

A. I think that is about the way it would figure. Anthracite is cheap there; we pay about that figure along the Sound, inland.

Q. And that the other company received $4 for its coke,
4756 being the two companies that were reported on. (Book produced.) I can give you the exact figures now, I think. That the Boston Gas Light Company received $4 a ton for coke and buys anthracite coal at $5.10.

Mr. MATHEWSON: Give me the page of that volume; what is it, if you do not mind?

Mr. PAGE: This is the hearing before the Board of Gas and Electric Light Commissioners, published in 1905 of the Investigation of 1904.

Q. And that the Bay State Gas Company charged $6.23 a ton for coke and bought their anthracite coal for $5.09. That is at page 235.

A. Yes, I noticed that statement.

Q. That is, it is put in as the price paid for coke used in generators, is that right?

A. That is right.

Q. Also the coke used in boilers?

A. Yes.

By Mr. MATHEWSON:

Q. Referring to these Boston gas companies you have never had the management of any company in Boston, have you?

A. No.

Q. You don't know anything about the circumstances under which this coke was obtained, do you?

A. I don't, only as stated there.

Q. Let us take the Boston Gaslight Company; it appears that the

the coal used in generators cost $5.10 per ton on page 273, does it not?

A. Yes.

Q. And it appears that coke used in generators, coke used in retorts and coke used in boilers is down at only $4 per ton, that is correct, is it not?

A. I did not notice that.

Q. Boston Gaslight Company, is that all coke that is referred to in this statement?

A. Yes.

Q. (Handing book.) $4?

A. Yes.

Q. Don't you know that the Boston Gaslight Company produces that coke itself and does not buy it in the market and that this $4 a ton is merely a charge upon the Company's own books for its use of coke which it itself produces in the same station?

4757

A. Yes, but it is incumbent to charge coke at the market price.

Q. No matter what it is incumbent to do, because you don't know what was done. But I ask you if that is not the fact which I have just stated in the previous question?

A. I know a coal gas company does not have to buy coke if it produces it.

Q. And it has a water gas plant attached to that?

A. Yes.

Q. So that this is not an actual purchase, but merely a book transaction in the books of the company as you understand it?

A. Yes, but it——

Q. Yes. Won't you just answer my question and stop?

A. Yes.

Q. Now we find, taking the Bay State Gas Company, that there was coal used in generators, 13,335 tons at $5.09 per ton. Now was not the amount of coke used in generators only 42 tons at $6.23 (handing book)?

A. Yes.

Q. And all the other coke that you find there is coke used in boilers, 17.8 tons at $6.23, is not that all the coke that appears in the statement?

A. All I noticed.

Q. Don't you know as a matter of fact that coke was obtained from the Boston Gas Light Company's Commercial Point plant at the time of the coal strike, when everything was out of sight in the way of fuel?

A. It is very possible, I don't know.

Q. And don't you know that that includes the cost of placing upon the charges at the Commercial Point Works, the transportation across to the Bay State Gas Works and the unloading at the Bay State Gas Works and transportation to the generators, as well as the actual price which the Boston Gas Light Company received for the coke?

4758

A. I suppose it included all expenses of getting it to generators.

Q. And don't you know that?

Mr. PAGE: The question is do you know of these facts in regard to that particular coke?

The WITNESS: No, I do not. I just take it for granted that the price of the coke there is delivered to the generator.

Q. Now, don't you know that the Bay State Gas Company produces no coal gas whatever but only water gas, and did at that time?

A. The Bay State is such a mixed affair, I guess nobody knows exactly what it does.

Q. Well, you don't know do you?

A. No, nor nobody else.

Q. I am referring, of course, to the Bay State Gas Company of Boston?

A. Yes, well, it is a very mixed situation.

Q. Is not your information that the Bay State Gas Company produce no coal gas but only water gas?

A. They produce water gas, I know that, but what it is doing now, it is producing water gas and stocks.

By Mr. PAGE:

Q. In regard to the price that the Boston Gas Light Company charged, you do not think that the Company charged itself a higher price for coke than the market price at which it was selling to its consumers, do you?

Mr. MATHEWSON: I object. That is too speculative.

Mr. PAGE: It is right on the line of your questions and it
4759 is directly responsive and in the same manner.

Mr. MATHEWSON: No, I asked him did he not know those things.

Q. I will say, don't you know, that the gas company does not charge itself more for coke than it charges its consumers.

Mr. MATHEWSON: I will ask that the question be limited to that particular case.

The MASTER: I do not see the value of that. He may ask him if he knows what the consumers pay. The other is a mere matter of opinion and argument. He does not know anything about what the gas company might charge. The fact is entirely competent, I agree with you Senator, about that, but I do not think that his opinion about it is of importance.

Q. Then we will turn over to page 274 and find where it states there the amount of coke produced to-day by the Boston Gas Company and at what rate?

A. Coke produced is 18,338.4 tons, at $4 charged.

Mr. PAGE: If the Master please, I shall want to examine Mr. Edgerton later on the 42d Street plant, and somewhat on candle power and pressure, and possibly upon the theory of distribution.

Mr. MATHEWSON: I thought he had finished his testimony on pressure.

Mr. PAGE: What is that?

Mr. MATHEWSON: And I cross-examined him on that, on the statement that that was all over. Mr. Edgerton testified respecting

pressure and I was requested to cross-examine on the theory that that examination had been concluded.

4760 Mr. PAGE: As to pressure?

Mr. MATHEWSON: Yes, he had made tests of pressure in one place and another, and candle power.

Mr. PAGE: Not on that. It is on the relation of candle power and pressure, not on pressure. That particular subject has been exhausted, I take it. It is not to go into that same question again.

The MASTER: You want to suspend his examination and take up another witness, is that the idea?

Mr. PAGE: Yes, I have a witness who will take only a few minutes and then I understand Mr. Burr will have his witness here this afternoon.

MARVYN SCUDDER, called as a witness in behalf of the defendant, the State of New York, being first duly sworn, testified as follows:

Direct-examination by Mr. PAGE:

Q. What is your occupation?

A. My occupation is reporting on stocks and bonds; knowing about quotations, sale price, bid price, asked price; and to enable me to be able to refresh my memory and be better equipped for doing that work, I have collected a financial library which I began some five or six years ago, and which dates back to 1885, containing quotations that appear in the financial papers through- the United States, records of auction sales, brokers' sheets, giving offers and bid prices and other information of that nature, pertaining to sales of securities both listed and unlisted.

4761 Q. You have what might be called an information bureau in regard to stocks and securities?

A. On financial subjects.

Q. On financial subjects?

A. Yes.

Q. Where is your office located?

A. Located at 52 Wall Street.

Q. Under what name is your business conducted??

A. The Investors' Agency.

Q. Is that an incorporated Company?

A. Incorporated.

Q. Have you made an examination of the financial records with particular relation to the sales of stocks of gas companies in the United States?

A. I made such examination.

Q. As to the dividends paid per annum on the stocks and the selling price of the stock?

A. Yes, sir.

Q. And what that netted to the investor on his investment?

A. Yes, sir.

Q. You may state such companies as you have.

A. Peoples Gas Light & Coke Company of Chicago; dividend rate per annum 6 per cent., as of December 31st, 1905; price of stock 100¾; net to the investor at that price 5.98 per cent.

Mr. MATHEWSON: 5.98 and something over, was it not? What was the per cent.?

The WITNESS: I have only carried it out to two decimal places in each case; 5.98.

United Gas Improvement Company of Philadelphia, 8 per cent., 188½; 4.38 per cent.

Consumers' Gas Company of Toronto, 10 per cent., 207; 4.85 per cent.

Detroit City Gas Company, Detroit, 5 per cent., 200; 2.50 per cent.

Laclede Gas Company, St. Louis, Missouri, common stock, 5 per cent.; asked price, 105; no bid; 4.76 per cent.

4762 Lowell, Massachusetts, Gas Company, Lowell, Massachusetts, 10 per cent., 245; 4.08 per cent.

Consolidated Gas Company of New York, 8 per cent., 181; 4.42 per cent. That gives the comparative figures.

Q. Now, the Consolidated Gas Company, can you give the average price by years per share and the dividends paid?

A. Yes, sir. The average for the year 1901 was 213.48; it would be a little more than that, I might say, but I have only carried it to the two decimal places.

Q. Well, it is 213.48 plus?

A. Yes. Average for 1902, 221.45 per share; average for year 1903, 194.19 per share; average for year 1904, 204.40 per share; average for year 1905, 195.77 per share.

Q. Can you give the dividends?

A. I would have to refer to the Manual of Statistics which I have here to refresh my mind as to the dividends.

Mr. MATHEWSON: That is already in evidence. We can figure that out.

Q. Yes, you need not take any time on that.

A. I might say in case a question might arise upon the dividends for the year ending December 31, 1905, I am taking the rate of the Consolidated as of that date. It is 8 per cent. Of course, I thought the question might arise as to whether that was the total amount paid during that year. Of course, as I say, this is the rate.

Q. That is, there were two quarterly dividends of 2½ per cent. One the latter end of 1904 and one in the early part of 1905, that raise the dividend for the year?

A. Yes.

Cross-examination by Mr. MATHEWSON:

Q. You are the owner of this Investors' Agency?

A. I am part owner of it.

4763 Q. Stockholder?

A. Stockholder, yes, sir.

Q. What is your age?

A. Twenty-one.

Q. Then I judge that this information back to 1885 was not obtained by you from your own accumulation, but from a library which you have examined so far as the previous years are concerned?

A. Part if it was, yes, sir.

Q. And you have no objection if we desire it, to showing us the records from which you get the information?

A. No, sir, I am prepared to do that.

Q. Now, as a matter of fact, the last ten years has been a period of high prices in stocks, a great part of it, has it not?

A. Yes, sir.

Q. Usually high prices and in a very large number of stocks, of record high prices, has it not been, so far as your knowledge goes?

A. So far as my knowledge goes, I would say within the last ten years the prices have been pretty high.

Q. And for the last two years and at the present time prices are very high as compared with quotations of many years ago, are they not, stock exchange securities in general?

A. As compared with——

Q. Years ago?

A. Yes, sir, I should say so. They vary with different men in different cases.

Q. Will you tell me what the quotations for the Consolidated Gas stock is now at this period of high prices?

A. I am not prepared to give the figure on that.

Q. Is it not about 138?

A. Somewhere in that neighborhood. I have forgotten the exact figures.

Q. Has it not been your experience that the quotations of stocks of corporations in Wall Street depend upon many things besides the actual rate of dividend paid?

A. No question about that.

4764 Q. Is it not true that a stock which is paying 8 per cent. and is laying up large surpluses right along will sell at a very much higher rate than a stock which is paying 8 per cent. and barely earning it?

A. Not necessarily. There might be other——

Q. There might be other features?

A. Yes.

Q. But other things being equal, it would be so, would it not, according to your experience?

A. It would be likely to be so. I think——

Q. And you have made these computations simply to show the dividend which was paid in each case, have you not?

A. No, sir, I have made these computations with the idea of giving what large gas stocks sell for, giving the figures on that.

Q. And giving the basis of their dividends?

A. I have included that in the computation.

Q. And you have not shown the present or net earnings on the selling price of the stock, but only dividends paid?

A. I did not take that feature up in this particular matter here.

Q. The Pennsylvania Railroad is a public service corporation and is considered high class and rather a standard corporation?

A. By some people, yes.

Q. Is it not generally by the public?

A. As a stock investment?

Q. Well, I mean as a corporation, as a good type of public service corporation in management and standing?

A. Well I would not say that without a qualification, no, sir.

Q. You are not in the investing business but are in the statistical business?

A. I am in the statistical business, yes, sir. I make records in regard to investments.

Q. And does not your record show that while the Consolidated Gas stock sold for 241½ in 1897 and 241½ I think in 1887, it sold between those dates as low at 92½?

A. I would have to consult my records to answer.

4765 Q. Have you the record here for the sales of 1892 and 1893?

A. I have not, unless I go to——

Q. You know it has fluctuated very largely and has shown a fluctuation of more than 100 points, don't you?

A. Yes—excuse me before I answer that question. Did you say 1897?

Q. Yes, I referred to 1897 and 1884 for the 241½.

A. I have not those records here.

Q. And then I referred to 1892 and 1893 as selling at say 92½, but your answer perhaps is sufficient. That fluctuation in the price of the Consolidated Gas Company stock in the last fifteen or twenty years have shown more than 100 points?

A. I am not prepared to swear to that.

Q. Would not that be so from your recollection?

A. I should say that was so, but I am not prepared to swear to that absolutely, because I have not looked it up in this particular case, and I want to be very sure about my figures before I swear to them.

Redirect examination by Mr. PAGE:

Q. You know that the Consolidated Gas Company to-day is on a dividend basis of 4 per cent.?

A. The Consolidated Gas Company to-day?

Q. Yes, is paying a dividend of 4 per cent. to-day instead of 8 per cent. as it did formerly.

A. Well, to-day, yes, sir, bu[illegible]is of——

Q. So if the quotation is as Mr. Mathewson says it is, and I have no doubt it is a fact, 138, it does not net on that price 4 per cent. to the investors?

A. No. That is of to-day. This is a computation for December 31st, 1905.

By Mr. MATHEWSON:

4766 Q. And you know also that the Consolidated Gas Company, speaking of it as a gas company, has a considerable part of its capital invested in securities of electric companies and their prospects come into the quotations of the Consolidated stock, do they not? What is your information in regard to that?

A. I know about that. The New York Edison Company——

Q. You know that, do you?

A. I realize that a good part of their assets are in stocks of other companies.

Mr. MATHEWSON: That is all.

Recess until 2.15 P. M.

After Recess.

WILLIAM D. MARKS recalled on behalf of the City.

Direct examination by Mr. BURR:

Q. When you ended your testimony a day or so ago, you were to have prepared a table showing the duplication or the triplication of the mains in the streets of the city, so far as your examination of the maps had gone. Have you done so?

A. I have.

Q. Will you state in what way you have prepared the statements which you have before you, and what they represent?

A. On the Island of Manhattan there are 6,000 street blocks; that is to say, 3,000 building blocks. Of these blocks 3,353 are occupied by one main; 56 per cent. of the total.

By two mains, 1,815 blocks are occupied; 30.2 per cent of the total.

By three mains, 548 blocks, 9.1 per cent. of the total.

By four mains, 235 blocks; 3.9 per cent. of the total.

4767 By five mains, 47 blocks ¾ of one per cent. of the total.

By six mains, two blocks, no percentage figured.

Total, 6,000 blocks and 100 per cent. checked.

The details are attached on eighteen sheets giving the location of each and every block and reference to the map and to the volume.

Q. How long has it taken you to prepare this?

A. Since leaving the witness chair, three to six of my assistants have been working in relays day and night without cessation up to an hour ago.

Q. Now, I think you have already been asked a question, during the progress of this trial as to whether in your opinion this was proper of economical construction, so far as the mains were concerned?

Mr. MATHEWSON: He has been asked and he has given his estimate of what a system would cost of single mains. He has been all over that.

Q. I say you have already expressed your views upon that subject.

A. I have.

Q. And your views, after an examination of these maps remain the same as to whether it is economical or uneconomical?

A. They remain substantially the same.

Q. And that is?

A. That is, that if it were necessary to substitute a system of mains involving one main or two mains according to the necessities of the case they could be installed at a less cost and with a great advantage to the Company and the consumers.

Mr. BURR: I will not take the time to read or have the Doctor read each *street*.

Mr. MATHEWSON: If you want to offer it, why not offer
4768 this part of it and have the other sheets as you did before marked for identification so counsel can have access to them, if they desire?

Mr. BURR: Very good. I came prepared to have the Doctor identify each block in every street in the city from these papers, but I think the simpler way will be to offer in evidence, as I do, the sheet Page 1-A, containing table showing the sizes of the Consolidated Gas Company's mains in the streets of New York City as the Doctor has described them, and the other sheets, being eighteen in number, I ask to have marked for identification.

Mr. MATHEWSON: I make the same objection to this that I did to the other, that the map from which this is prepared is not original evidence and that it is not material or relevant evidence in any case, this being the property as it exists.

Objection overuled. Exception.

The first sheet is received in evidence and marked City's Exhibit 102.

The remaining sheets are marked for identification, respectively, City's Exhibits, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120.

Q. Calling your attention to the testimony given by you on page 4607 and 4608 in response to a question of Mr. Mathewson as to the depreciation which you claimed amounted to $744,687 in the 14th Street plant, you were asked this question by him:

"Q. And depreciation is a charge to operating account in that the Company must maintain its property or should maintain its property, is it not? A. Yes, of .85 of one per cent. each year?"
4769 Will you be good enough to explain that a little more in detail as to what you mean?

A. The .85 of one per cent. annually allowed for depreciation was obtained from a resolution of the Board of Directors of the Consolidated Gas Company, dated January 30th, 1906, referring to the year 1905.

By Mr. MATHEWSON:

Q. You do not mean annually, do you, Doctor?

A. .85 of one per cent. annually. This .85 of one per cent. resulted from the assumption that $2.00 per annual thousand of sales was the proper investment, and that 1.71 cents per thousand of sales should be allowed for depreciation. This depreciation being due not to decay or wear and tear, but due to inadequacy of obsolescence. This .85 of one per cent. annually is to be charged to the cost of making gas, but it is also to be credited to the capital account or assets, reducing them by that amount. Taking .85 of one per cent. for fifty years it amounts to 42½ per cent. The question whether or no this percentage has been charged off on the books of the Company during the fifteen preceding years——

By Mr. BURR:

Q. Preceding 1905?

A. Preceding 1905; (continuing) is one which I cannot determine, having had access to the operating accounts only for the year 1905.

Q. You were asked this question further by Mr. Mathewson:

"Q. But a company is entitled to take care of its depreciation by a charge to operating expenses as it currently occurs, isn't it? A. Certainly, to the extent of .85 of one per cent.

4770 "Q. Well, whatever it is in any particular case? A. Yes.

"Q. And whether that depreciation occurs from one or the other causes to which you have referred? A. Yes."

Does that clearly express your views on that subject or do you desire to add anything further?

A. That precisely expresses my views although I may not have made myself as lucid as I could have. I think, however, my previous explanation will cover that ground.

Q. What have you to say to the allowance claimed by Mr. Addicks as to a contingent fund of ten cents in this connection?

A. Referring to the ten cents per thousand cubic feet of sales, except in so far as 1.71 cents for 1905 is concerned, it appears to me unjustifiable.

Q. Why?

A. Because it is excessive and not required; 1.71 cents per annual thousand cubic feet of sales being the result of the action of the Board of Directors of the Consolidated Gas Company for the year 1905.

Mr. BURR: I think that is all I want to ask the Doctor.

Cross-examination by Mr. MATHEWSON:

Q. This tabulation, City's Exhibit 102, is by blocks only?

A. Yes, sir.

Q. And not by mileage, either as obtained by you from the measurements of the map or from Mr. Simpson's testimony?

A. It is not by mileage.

Q. Now, it appears, does it not, that between 86 and 87 per cent. of the blocks have only one main or two mains?

A. About 86 per cent.

Q. 86.3 per cent. according to your figures?

4771 A. Yes; 86.3 per cent. of the blocks are occupied by one or two mains.

Q. And is it not true that in the cases where there are the greatest number of mains those cases are as a rule on the avenues, or Broadway?

A. Yes.

Q. And did you make any distinction as between the mains upon which services are carried and mains which are known as supply mains upon which there are no services but which are to conduct gas to a distant point before entering the mains on which services are located?

A. Not in City's Exhibit 102.

Q. You used the term "booster" system?
A. Never.

By Mr. BURR:

Q. Where does that information appear that Mr. Mathewson has asked for regarding the subject of mains?

Mr. MATHEWSON: I did not ask for any information. I merely asked if there was any distinction made in this mileage. He presented it.

Q. Is there any distinction made in the other exhibits already introduced?

A. In the three hundred and ten abstracts from the maps that is clearly shown.

ROBERT L. WATERS, a witness called on behalf of the City, being first duly sworn, testified as follows:

Direct examination by Mr. BURR:

Q. What is your business or profession?
A. City surveyor.
Q. How long have you been a city surveyor in this city?
A. Upwards of thirty years.
4772 Q. Are you familiar with the city maps of all kinds?
A. Yes, sir.

Q. Will you look at the chart or diagram I show you and state what that is, if you know?

A. It is a map showing all the streets lying from between 12th and 16th Streets, both inclusive, and from Tompkins Street to Avenue A, showing also the lines of the high water and low water.

Q. It is a correct transcript, is it, of the City's Exhibit 76, the original map?

A. It is a correct copy of the original map. I don't know what the number of the exhibit is.

Q. Well, the original map we offered and it was numbered City's Exhibit 76. You made this copy from the map on file in what office?

A. The office of Public Works.

Q. That is a map containing the statement which appears upon this copy, is it, to which you referred?

A. Yes, sir.

Q. And that is a correct transcript of the statement appearing upon the original map?

A. It is.

Q. The copy was made by you?

A. Personally.

Q. And this is a true, a correct and an accurate copy of the map referred to insofar as the same refers to the locations described upon this map or included in this map or diagram?

A. It is.

Mr. BURR: I offer it in evidence.

Mr. MATHEWSON: Just what does this show anyway?

Q. This is a tracing from the map offered in evidence here marked City's Exhibit 76?

A. Well, this map is not taken direct from a tracing of the official map; that tracing has to be taken in pencil. We are not allowed to use inks.

Q. And this is taken from the pencil tracing?

A. This is taken from the pencil tracing.

4773 By Mr. MATHEWSON:

Q. And this interior tracing, irregular, in blue ink, is the tracing from that map, Exhibit 76?

A. Yes, sir.

Q. How about the balance of the map here?

A. What is shown on this map is all taken from the official map.

By Mr. BURR:

Q. And this map is over twenty years old, is it?

A. Yes.

Q. That is, it has been on file in that department for over twenty years?

A. Yes, sir.

Tracing marked "Tracing of City's Exhibit 76."

By Mr. MATHEWSON:

Q. Were all these lines on the original map?

A. Yes, and on the same scale, yes, sir.

By Mr. BURR:

Q. Describe what the paper is which I now hand you.

A. This is a tracing of the map showing all the streets, including 40th Street up to 46th Street inclusive, lying between Tenth Avenue and Thirteenth Avenue, both inclusive, showing the high and low water lines; also grant of land to John J. V. Westervelt; and also a pier and bulkhead with the distances on the grants; also the block distances on the streets and on one side of Tenth Avenue and one side of Twelfth Avenue, and also showing the depth of water below high water on the line of the Hudson River.

Q. And is this tracing of the original map made in the way you have described the other, Exhibit 76?

A. Yes.

4774 Q. Have you correctly and accurately placed upon this tracing the endorsement which appears on the original map heretofore offered but not marked in evidence City's Exhibit 78?

A. I have.

Q. And is that tracing a true and accurate tracing of such original map?

A. It is.

Q. Is that map over twenty years old to your knowledge?

A. Yes, sir.

Q. Has it been on file in the Department of Public Works for a longer period than twenty years?

A. Yes, sir.

Mr. BURR: I offer in evidence that tracing as being a correct tracing of maps heretofore offered, "A map showing the projected exterior line of the City of New York, extending along the Hudson River from Hammond Street to 135th Street, signed New York, March 10, 1837, George B. Smith, City Surveyor," and special reference being made to that part of the map which lies between 40th and 46th Street, west of Eleventh Avenue.

Paper marked tracing of City's Exhibit 78.

Mr. BURR: As to the prior tracing, City's Exhibit 76, it is received in evidence, I understand, as a correct copy of the original map offered but not marked in evidence heretofore, bearing the endorsement, "East River Shore, Corlaer's Hook to 28th Street, March 7, 1825," and it bears the endorsement on the front of it, "In Common Council, March 7th, 1825. Upon the report of the Finance Committee on Recommendation of Peter G. Stuyvesant, this map was presented and was accepted and approved by the Board. Peter J. Martin, Clerk," the map being of Tompkins Street, special reference being made to that portion of the map which shows
4775 Tompkins Street between 12th and 16th Street.

Q. (Handing paper.) What does this show?

A. 109th Street, 110th Street, 111th Street and 112th Street, First Avenue and Avenue A, and a portion of another street lying easterly of Avenue A which is supposed to be an exterior street, but there is no name on this portion of the map. It also shows First Avenue and part of Avenue A.

Mr. MATHEWSON: What is the date?

The WITNESS: 1858.

Q. Was that copy made by you or that tracing made by you?

A. Yes, sir.

Q. Does that contain a true and correct copy of the endorsements appearing upon the original map?

A. It does.

Mr. BURR: I offer it in evidence, being an extract from map heretofore offered in evidence, but not marked, City's Exhibit 80.

Paper marked "Tracing of City's Exhibit 80."

Mr. BURR: I offer this as a copy of the resolution approving the Southard map, being the map just introduced as City's Exhibit 80.

Paper marked City's Exhibit 80-A, (the same to be appended to City's Exhibit 80.)

Mr. BURR: I offer in evidence copy of the grant, City, Exhibit 81, appearing on page 4285 of the testimony.

Paper marked copy of City's Exhibit 81.

Q. (Handing paper.) What paper is that which I hand you now, please describe it and tell us what you know about it?

A. Map showing all the streets from 14th to 18th Streets,
4776 both inclusive, from Tompkins Street to Avenue B, inclusive; also showing the grant of land to Hezekiah Bradford, dated 22d day of June, 1848.

Mr. MATHEWSON: That was part of the deed, wasn't it.

Mr. BURR: Yes.

Mr. MATHEWSON: The witness simply says that he made this tracing, does he?

Mr. BURR: Yes.

Mr. MATHEWSON: The witness does not know whether they were attached to the maps or not?

Mr. BURR: The witness does not identify those but identifies the maps as correct tracings.

Mr. MATHEWSON: In each case the grant was offered in evidence including the maps, so it is a mere matter of having a copy offered instead of the original.

Mr. BURR: And having the grants spread upon the record.

Mr. MATHEWSON: Supposing you offer them one at a time and then ask Mr. Waters if he made accurate copies of the maps attached to the original grant. That will satisfy me.

Mr. BURR: Then I ask to have copy of City's Exhibit 82 marked, with the map accompanying the same, also City's Exhibit 83 and the map accompanying the same; also City's Exhibit 84 and the map accompanying the same same; also City's Exhibit 85 and the map accompanying the same; also City's Exhibit 86 and the map accompanying the same.

Papers received and marked copies of City's Exhibits 82, 83, 84, 85 and 86.

Q. (Handing paper.) I hand you City's Exhibit 88 for identification in this case. Will you say whether that diagram was
4777 made by you?

A. It was.

Q. What does it represent?

A. It shows 14th, 15th and 16th Streets, Avenue C and Avenue D and Tompkins Street, one side of Tompkins Street.

Q. And that is an extract from what map?

A. It is also—the red lines upon that map are the lines taken from the water grant map of that section; the black lines lying East of the red lines are taken from Complainant's Exhibit 48, page 2.

Q. What does this red line represent?

A. It represents the line of Tompkins Street.

Q. Does it show what that line cuts off?

A. Yes, sir, on the block line between 15th and 16th Streets, Avenues C and D.

By Mr. MATHEWSON:

Q. The line of Tompkins Street according to what survey?

By Mr. BURR:

Q. From what map was this tracing made?

A. The water grant map.

Mr. MATHEWSON: You mean the red lines?

The WITNESS: Yes.

Q. That is the map you have identified to-day and which had been offered in evidence as City's Exhibit 81?

A. Yes, sir.

Mr. BURR: I offer that in evidence. I merely had that made for

convenience so that when testifying to the altered valuation, Mr. McHale and Mr. Thompson, might use it, but Mr. Walters now produces the correct tracing from the original map, and this he testified is correct.

Paper marked City's Exhibit 88.

4778 Mr. BURR: We expect to have blue prints ready for you to-morrow, Mr. Waters states. You can have those in the meantime for any purpose you desire.

Mr. MATHEWSON: I do not know that I will want them in the meantime, but I will want to use a blue print within the next few days, that is all.

Cross-examination by Mr. MATHEWSON:

Q. Have you compared each one of the maps here with the original and made it from the original to which it related in each case?

A. I made each one personally.

Q. And they are accurate copies of the maps?

A. They are, yes, sir.

Mr. MATHEWSON: Now, Mr. Master, I have not objected to the marking of these copies because the original maps came in in order to show water grants, but I do want to place upon the record that if they are introduced for the purpose of showing a want of title of the Company to its property, which it is now using, I object to it as immaterial and irrelevant and not in issue in this case. I assume the Master does not propose to try an ejectment suit here. It is a question of the valuation of the property. I make the statement so that my position may not be misunderstood at any moment.

Mr. BURR: I do not suppose you claim a return upon any property that you are not legally entitled to.

Mr. MATHEWSON: We claim a return upon the property and investment and resources which are in the gas business.

The MASTER: I suppose I shall have to assume that any
4779 property of which the Gas Company is in possession and is using and occupying, they have the right to use and occupy either by one form of title or another, unless I have actual notice to the contrary.

Mr. MATHEWSON: And may I ask counsel how, if we were to be excluded from land at one point or another, upon which our plant is now placed, it would be possible to avoid crediting us with an equal amount of land that we would have to get somewhere else and put up a plant of producing that capacity?

Mr. BURR: The situation is this, in a nutshell, you have already admitted that the title was originally in the city, and it remains for you to prove that you received it from the city, or any of your grantors received it.

Mr. MATHEWSON: You missed my point. If we hold a block here which belongs to the city and it could be held that we could be rejected from that, we must have credit for land somewhere else, because we have to get land somewhere to manufacture our gas, and you could not get away from that proposition, if any of our manufacturing plants were on someone else's land.

Mr. BURR: That is another matter. These maps show the situation as it is to-day.

Q. Now, Mr. Waters, referring to City's Exhibit 76, it is in evidence that the manufacturing plants of the Consolidated Gas Company are upon the blocks 14th to 15th Streets. You have seen the plants there, haven't you?

A. I have been in that section.

Q. And the Manhattan Company was incorporated, if I recollect about 1830 or such a matter. How long have you lived
4780 in New York City?

A. Well, in New York City for nearly sixty-five years. That is, what is Greater New York.

Q. You do not remember the time when there were not gas plants at 14th and 15th Streets?

Mr. BURR: Objected to as immaterial and incompetent. He cannot prove adverse possession by this witness. We simply called him to prove that these tracings are copies of the map.

The MASTER: I will let him answer.

Mr. BURR: Exception.

A. My earliest recollection places the plants down at about 111th Street.

Q. Yes, that is another plant, but do you remember any time when the Manhattan Gas Light Company, which was incorporated about 1830, did not have a manufacturing plant at 14th and 15th Streets?

Mr. BURR: Objected to because it is assuming something that the witness has not testified to.

The MASTER: He may know something about it.

By Mr. BURR:

Q. Do you know that this Company was incorporated in that year?

Mr. MATHEWSON: I will put it this way, if you object.

By Mr. MATHEWSON:

Q. It is in evidence that the Manhattan Gas Light Company was incorporated about 1830 and that one of its plants was located at 14th and 15th Streets and that it went into the Consolidated
4781 Gas Company in 1884. Do you remember any time when there was not a gas plant at 14th and 15th Streets?

Mr. BURR: I make the same objection to this question.

The MASTER: Same ruling.

Mr. BURR: Exception.

A. I cannot place the plant at 114th and 115th Streets.

Q. No, no, 14th to 15th Streets, not 114th to 115th Streets.

A. Oh, 14th and 15th Streets? No, I do not recall any time but what there was a plant there at 14th and 15th Streets.

Q. In your avocation as a surveyor you have been generally fa-

miliar with the City of New York and been over almost every section of it 30 or 40 years ago?

A. Pretty much.

Q. Generally, yes.

A. Yes.

Q. Did you make a survey of this property at 14th and 15th Streets now, Mr. Waters?

A. No, I did not.

Q. These maps that have been produced here today, both those affixed to the grants and the detached maps correctly show or purport to show the situation at the date of the map and not the present situation as to streets and property on the water front?

A. That is all.

Q. Do you know, taking City's Exhibit 78, whether Twelfth Avenue has actually been cut through below 46th Street, or whether it is laid out or is used at all by the public?

Mr. BURR: Objected to as incompetent, irrelevant and immaterial and this is not proper cross-examination, this witness not being called except for the purpose of identifying these exhibits as being true accurate extracts from the original maps offered in evidence.

4782 The MASTER: Well, Mr. Mathewson, can examine him if he chooses to take the risk of making him his witness, on these matters.

Mr. BURR: Exception.

A. What street did you say?

Q. Twelfth Avenue.

A. Between what streets?

Q. Do you know whether it is cut through below 46th Street at all?

A. If my memory serves me, I think not.

Q. Don't you remember a gas plant at 41st to 42nd Street and another from 44th to 46th Street, west of Eleventh Avenue, ever since you have been a city surveyor? Is it thirty years?

A. City Surveyor, yes. I remember there were gas plants in that vicinity, but I could not say the exact location.

Q. About that location?

A. Yes, there were gas plants there.

Q. I see that in City's Exhibit 80, Avenue A is indicated east of First Avenue. Exhibit 48 shows an avenue there known as Pleasant Avenue instead of Avenue A. Are those identical streets do you know?

A. Yes, sir, Avenue A was changed to Pleasant Avenue.

Q. And in 1857 there appears to be shown on this map a gas works on 111th Street?

A. There was a gas works there then.

Q. Referring to City's Exhibit 88, the red line, in order to identify it otherwise than by color is the easterly end of the block bounded by 14th and 15th Streets, Avenue C and Avenue D, is it not?

A. Yes, sir.

Q. And the diagonal line running northwest from near the northwesterly corner of Avenue D and 15th Street and coming out about one-third of the way from Avenue D to Avenue C on 16th Street?

A. Yes.

4783 Mr. BURR: To be accurate, this is a black and red line.

Q. And the irregular lines shown on these City's exhibits interior to the outside lines are in blue?

A. Yes, sir. There is one map that has black irregular lines on.

Q. Yes, I see that there are some of them that have black lines as well as blue.

A. Yes. Those are supposed to show the lines between the upland and the salt meadow, I should take it to be.

Q. The black lines are——

A. The black irregular lines.

Q. And the blue irregular lines?

A. Are the water lines from the original maps.

Q. High water mark?

A. I presume there would be originally a high water mark and original low water mark.

Q. And you did not make these original maps yourself?

A. No, sir.

Q. And you merely draw your conclusions?

A. Yes.

Mr. MATHEWSON: That is all.

Mr. BURR: I offer in evidence certified copy of deed dated November 18th, 1882, from Everett Peppenell Wheeler, and Lydia L., his wife, Mary Hannah Smith, and Reverend Cornelius B. Smith, her husband, and said Everett Peppenell Wheeler and Mary Hannah Smith, individually and heirs at law of David Everett Wheeler, to the Metropolitan Gas Light Company to the City of New York. I simply desire to read in the consideration expressed as follows:

"Witnesseth, that the said Everett Peppenell Wheeler, Mary Hannah Smith and Cornelius B. Smith, three of the parties of the

4784 first part, by virtue of the power and authority to them given in and by the said last Will and Testament, and for and in consideration of the sum of Eighteen thousand five hundred and sixty dollars, lawful money of the United States of America, to them in hand paid by the said party of the second part." Transferring the property described in the said deed. The deed is dated November 18th, 1882, and was received in the office and recorded November 29th, 1882, at 1 P. M., Samuel Taylor, Clerk.

This covers the Shadyside property, that is the upland. Attached to the deed is a certificate dated the 4th day of December, 1906, reading as follows:

STATE OF NEW JERSEY, *County of Bergen, ss:*

I, John R. Ramsey, Clerk of the County of Bergen in the State of New Jersey, and also Clerk of the Circuit and Common Pleas Courts, in and for said County (Courts of Record), do hereby certify that I have compared the copy of the record of the Deed hereto annexed,

with the original record thereof in Liber H-11 of Deeds, at pages 44, &c., in my office at Hackensack, in said County, and that the same is a true copy thereof, and of the whole of such original record.

In Testimony Whereof, I have hereunto set my hand and affixed the seal of said Courts and County, at Hackensack aforesaid, this fourth day of December, one thousand nine hundred and six.

[SEAL.] JOHN R. RAMSEY, *C.*,
By W. S. DORUM, *D/C.*

Paper marked City's Exhibit 121.

4785 & 4786 Mr. BURR: I offer in evidence grant dated January 6, 1883, from the State of New Jersey to the Metropolitan Gaslight Company of the City of New York, conveying to the party of the second part, the Metropolitan Gaslight Company of the City of New York, the land under water and Shadyside. I read on the record the recital as to the consideration: "And, whereas, the said Commissioners, having due regard to the interests of navigation, have agreed to grant the lands hereinafter mentioned, and determine that $7,291.35 is a proper compensation to be paid to the State for the lands hereinafter conveyed."

The same being duly certified by J. R. Ramsey, Clerk of the County of Bergen, in the same manner as previous deeds, City's Exhibit 121.

Paper received in evidence and marked City's Exhibit 122.

Mr. BURR: That is all I can do to-day. I desire to say for Senator Page and Mr. Kirby that they will be ready to-morrow with some of their witnesses who are on their way here by train, and they are expecting their arrival hourly.

At 3:50 P. M. adjourned to December 8, 1906, at 10:30 A. M.

Last Exhibits:

Complainant's 257.
State's AAA.
City's 122.

4787 Circuit Court of the United States, Southern District of New York.

CONSOLIDATED GAS COMPANY OF NEW YORK, Complainant,

vs.

JULIUS M. MAYER, as Attorney General of the State of New York; WILLIAM TRAVERS JEROME, as District Attorney of New York County; FREDERICK E. GUNNISON, JOHN C. DAVIES, and LUCIAN L. SHEDDEN, Constituting the New York State Commission of Gas and Electricity, and THE CITY OF NEW YORK, Defendants.

Before Arthur H. Masten, Special Master.

NEW YORK, *December 8th*, 1906.

Met pursuant to adjournment.

Present: The Master, Mr. Mathewson, Mr. Burr, Mr. Page, Mr. Kirby.

4788 GUSTAVUS T. KIRBY, a witness called on behalf of the State, being first duly sworn, testified as follows:

Direct examination by Mr. PAGE:

Q. What is your business?

A. I am a lawyer, sir.

Q. Where is your place of business?

A. 2 Wall Street.

Q. Pursuant to the understanding that you were to receive a sample of the oil used by the Consolidated Gas Company, did you visit the works of the company?

A. I did; the 21st Street works of the company, Avenue A and 21st Street.

Q. On what date?

A. On Wednesday, December 5th.

Q. Whom did you meet there?

A. Dr. Elliott, the chemist of the Consolidated Gas Company.

Q. Now you may state what you did.

A. With him I went to the operating floor of the station and there, in the presence of Dr. Elliott and myself, about four quarts of oil were drawn from the pipe which entered into the enriching ap-aratus.

Q. Did that go into the low water gas generators? The oil is an enriching——

A. Into the low water gas generators.

Q. Then it was taken from the feed pipe?

A. From the feed pipe to that apparatus.

Q. What else did you do?

A. About two quarts of this oil was placed in a can which I retained, and the balance was retained by Dr. Elliott. We then went to the pump, which I was told by Dr. Elliott was taking the oil from the tank and forcing it through the pipes to the various apparatus,

and for us at this point about four quarts of oil were drawn. As in the other instance, two quarts were furnished to me, which I placed in a can, and the balance was retained by Dr. Elliott. The
4789 first can was marked by me, "Can A," and the second can was not marked at all. I then took these cans to my office at No. 2 Wall Street and there——

Q. One minute. Was it stated to you what gravity oil this was?

A. It was stated to me that this was the high gravity oil. I requested them to also furnish me oil of about 28-degree gravity, or such as they used at other times than at present. Dr. Elliott stated they had none in the yard at that time, and it would be impossible for him to furnish me any.

Q. When you said 28-degree oil such as they had used at other times, did you mean the 28-degree oil that was called for under the contract?

A. I so stated to Dr. Elliott. He informed me he had no knowledge of any contract or what was in it, but he did know what I meant when I said 28-degree oil, and he considered that as the oil which they were not using. The oil which he designated as 34-degree oil I took samples of.

By Mr. MATHEWSON:

Q. Who stated this was the high gravity oil?

A. Dr. Elliott. I also talked over the telephone with Mr. Bradley about the low gravity oil, and I talked with Mr. Bradley over the 'phone enough to recognize his voice when I hear it, and I know it was he who was speaking, and he stated to me that they could not furnish me any 28-degree oil at this time. That is, by "they" I mean the Consolidated Gas Company.

Q. Did he give any reason more than that they did not have it?

A. None, other than that they did not have it.

Q. Now you may state what you did with these samples of oil?

A. I brought them down to my office at No. 2 Wall Street, and there Mr. James Boyd, who is here present, wrapped them up.
4790 I wrote a letter to Mr. Lewis Emory, Junior, Bradford, Pennsylvania, and turned over the oil and the letter to Mr. Boyd, with instructions to him to deliver them to Mr. Emory at Bradford.

Cross-examination by Mr. MATHEWSON:

Q. Mr. Elliott told you that the reason he could not give you the lower gravity oil was because the company was not at present using it, didn't he?

A. And because they had none in their yard or anywhere that he knew.

Q. He told you the company was not in the present cold weather using it?

A. Yes, that at this time the company was not using the low gravity oil.

Q. And Mr. Mathewson, counsel for the company, also stated that to you before you went up to draw the samples, did he not?

A. I was not surprised when Dr. Elliott so stated, and was not sur-

prised for the reason that Mr. Mathewson had stated as he has just said.

Q. Do you know who Mr. Emory, of Bradford, is?

A. I have heard of Mr. Emory, of Bradford, Pa., for some little while as a man prominent in matters having to do with oil, being an oil producer and vendor, being proprietor of a company that has a pipe line to Philadelphia.

Q. Well, the samples were given you as asked for and at the place designated, were they not?

A. They were, sir.

JAMES D. BOYD, a witness called on behalf of the State, being first duly sworn, testified as follows:

Cross-examination by Mr. Mathewson:

Q. What is your occupation and where is your place of
4791 business?

A. My occupation is bookkeeper, at 2 Wall Street.

Q. Did you receive a sample of oil from the preceding witness, Mr. -irby?

A. I received two cans of oil from Mr. Kirby at his office, 2 Wall Street; one can marked "A," that is, marked on the cork, and the other was blank. I wrapped those two cans up in a package and took Mr. Kirby's instructions as to the delivery of them.

Q. Where did you go with them?

A. I took the Erie Railroad train to Bradford, Pennsylvania, at 7:30, I believe, at night. I took the cans in my possession and kept them there until I reached Bradford, Pennsylvania, next morning. I then inquired for Mr. Emory at Bradford and was told that his office was 41 Main Street. I went to 41 Main Street and was told there I might find Mr. Emory at the acid works in South Bradford. I took the cans and letter of Mr. Kirby to the acid works, saw Mr. Emory probably about 11:30 or 11 o'clock, or thereabouts, and he told me he would see me later at his office at half-past one, 41 Main Street. So I met that Mr. Emory and his son at his office, 41 Main Street, and opened the package in there, and they sent for Mr. Scott——

By Mr. MATHEWSON:

Q. Are the two gentlemen to whom you delivered those two samples of oil present here now?

A. Yes, sir.

Q. What were their names?

A. Mr. Lewis Emory, Jr., and I think Mr. Delavan Emory. I am not sure as to his name. It was Mr. Emory's son.

Q. In whose office are you a bookkeeper?

A. Gould & Wilke's office, 2 Wall Street.

4792 By Mr. PAGE:

Q. Did you deliver these packages in the same condition that they were in when you received them?

A. Yes. I wrapped them myself and I delivered and opened them myself.

Q. And they had not been opened from the time you got them until you delivered them?

A. No, sir.

By Mr. MATHEWSON:

Q. Were they stopped by cork in each case?

A. Yes, sir; I tied the corks in. And they were in exactly the same condition.

Q. Were the corks driven in originally or simply pressed in?

A. Simply pressed in, simply put in the stopper in the can.

DELAVAN EMORY, a witness called on behalf of the State, being first duly sworn, testified as follows:

Direct examination by Mr. PAGE:

Q. Where do you reside?

A. Bradford, Pennsylvania.

Q. What is your occupation?

A. Oil refiner.

Q. How long have you been engaged in that business?

A. Since July, 1891.

Q. And your works are at Bradford, Pennsylvania?

A. Yes, sir; I am manager of the works; the Emory Manufacturing Company is the name of the firm.

Q. What is your particular part of the business?

A. I am the manager.

Q. Were you present at the time these two cans of oil were
4793 delivered by Mr. Boyd, the witness preceding you on the stand?

A. Yes, sir.

Q. Did you receive one of the cans?

A. Yes, sir. Both cans were opened there in the presence of my father and myself. We sent to the works for our superintendent and he brought the hydrometer jar, Beaumé hydrometer and thermometer to our office and we weighed or took the gravity of the oils contained in the two cans, one can marked "A" and the other can was blank; no mark at all.

Q. What did you find was the test of that oil?

A. 34 gravity; a fraction over 34.

Q. What else did you do with the oil?

A. We offered to make no other test except the odor, the smell of the oil.

Q. What did you discover by the odor?

A. It was not anything like any oil we made from Pennsylvania crude. I should judge it was an oil produced by what is the low grade crude oil; produced from a low grade crude oil.

Q. Could you tell by that means whether it was a Pennsylvania oil?

A. Yes, sir; I could tell by the odor it was not Pennsylvania oil.

Q. And when you speak of Pennsylvania oil what in the trade does that mean? What is supposed to be the Pennsylvania oil?

A. It is the oil that is produced in western New York, Pennsylvania, West Virginia and southeastern Ohio, and bears a price of $1.58 a barrel.

Q. That is the crude oil at the well?

A. Yes, sir.

Q. Those oils have a para-fine base, have they?

A. Yes, sir; they contain no sulphur.

Q. Well, will you produce, if you have it, a portion of the oil that was in the can "A"?

A. (No answer.)

Q. You made some tests of the other can, did you, the one without a mark?

A. Yes; they were both the same.

4794 (Witness now produces a bottle containing a fluid.)

Q. The sample you now produce is from can "A"?

A. Yes, sir; it is so marked on the cork.

Mr. PAGE: I offer the sample in evidence.

Mr. MATHEWSON: I have objected previously to this line of testimony as immaterial and irrelevant, and I think the Master decided to accept it. I make the same objection to this testimony now.

Objection overruled; exception.

Received in evidence and marked State's Exhibit BBB.

Q. Have you a sample of a similar grade oil taken from the Pennsylvania field?

A. Yes, sir. (Producing another sample.)

Q. What is the sample you now produce?

A. 34 gravity pressed distillate, used for fuel and gas oil.

Mr. PAGE: I offer this sample in evidence.

Received in evidence and marked State's Exhibit CCC.

Q. From what field would you judge from its appearance and smell the sample of oil, State's Exhibit BBB, came?

Mr. MATHEWSON: Is the witness shown to be competent to judge?

A. I could not state from what field, but I am positive it is not from Pennsylvania for the reason they do not sell 34 distillate for gas oil, the Standard Oil Company or any other people. That is wrong, I did not mean to say that.

Q. Well, just correct it. How do you want to correct it?

4795 A. I will have to explain the process a little bit. In the Bradford oil these neutrals are—in the lubricating trade the neutrals are sold by the test, and the neutral oil from our Bradford oil or a 34 from our Bradford crude lacks viscosity, or will not answer the trade requirement for lubricating oil of 34 gravity, and for that reason we sell it for fuel oil; but the Standard Oil Company, they have a trade in which they use all their Pennsylvania neutrals, I assume, for lubricating oil.

Q. Now, are you familiar with the oil that is produced and sold in large quantity for export, which is a 44 degree oil?
A. Yes, sir.
Q. Have you a sample of that?
A. (Producing sample.) It is an export oil, 45 degrees, according to the rules of the Produce Exchange; 44½ degree or better.
Q. Do you know at what price this oil is sold in the New York market?
A. It is sold for 4.4 cents per gallon f. o. b. tank steamer, New York Harbor.
Q. Can anybody buy this that wishes to do so in the market?
A. Yes, sir.
Q. Not alone for export, but buy it for any purpose at that price?
A. Yes, sir.
Q. At what price do you sell this oil in Philadelphia?
A. We sell it for $4.35, the regular official quotation, f. o. b. tank steamer in Philadelphia, or rather at Marcus Hook, eighteen miles below Philadelphia.

Mr. PAGE: I offer this sample in evidence.
Received in evidence and marked State's Exhibit DDD.

Q. Referring to State's Exhibit DDD, is that a refined oil?
A. It is what is known as a 73 Able standard white oil, refined.
4796 Q. Wherein does this differ from the 34 degree oil, State's Exhibit CCC?
A. This is a finished product and the other is a distillate.
Q. What do you mean by a finished product?
A. An oil that has gone through all the processes of refining and is ready for the lamp.
Q. Besides having had drawn off the distillate, it has been refined?
A. Yes, sir; been treated.
Q. That naturally adds to the cost of the oil?
A. Yes, sir.
Q. Have you the distillate from which this is refined?

Mr. MATHEWSON: From which this particular oil was refined that you offered?
Mr. PAGE: No, that character of oil——
(Witness produces another sample.)

Q. Is this part of the same?
A. This is further along in the process.
Q. It is the same oil?
A. It is the same product. From this we obtain the export oil (referring to bottle last produced).
Q. That is the same gravity?
A. All the properties are the same in this except the color.
Q. And this is the distillate oil of which Exhibit DDD is the refined oil?
A. Yes, sir.

Mr. PAGE: I offer this sample in evidence.

Received in evidence and marked State's Exhibit EEE.

Q. At what prices does State's Exhibit EEE sell in the New York market?

A. It is not sold in the New York market. At least, we do not sell it here.

Q. Where do you sell it? In Philadelphia?

A. We do not sell it as distillate. We sell it as 73 Able standard white oil.

4797 Q. Well, you only sell the refined product, then?

A. Yes, sir.

Q. How much does the refining add to the cost?

A. Probably one-sixteenth cent a gallon.

Q. And is there any 28-degree oil produced and sold for gas-making purposes from Pennsylvania oil?

A. No, sir.

Q. Why not?

A. 28-degree oil produced from Pennsylvania oil is sold as cylinder stock, a light gravity and low fire-test cylinder stock, and from the para-fine, 28-para-fine oil, which is sold for more money than is obtained for the gas oil.

Q. That is, the 28-degree Pennsylvania oil is more valuable than the 34-degree?

A. Yes, sir, for the reason that it is a lubricating oil.

Q. And brings a higher price in the market?

A. Yes, sir.

Q. But you know that there are gas oils of 28 degree Beaumé?

A. I never heard of it being that low, no, sir. We never had any inquiry for gas oil of that gravity.

Q. Well, you manufacture at your refinery Pennsylvania oil entirely?

A. Yes, sir.

Q. Do you at your refinery distill anything but the Pennsylvania oil?

A. Yes, sir. We have nothing but Pennsylvania oil. Yes, sir. That is all we refine, Pennsylvania oil.

Q. Do you know what is the base of the Texas and Indian Territory oil?

A. Asphalt.

Q. Are you familiar with the price of oil at the wells?

A. I know the Pennsylvania price.

Q. That is all you are familiar with?

A. Yes, sir.

Q. You might describe the process of distillation by which these different degrees oils are produced?

A. This oil is produced by placing the oil in——

Q. You refer to Exhibit EEE?

A. Yes.

4798 Q. That is the refined produce. I was asking for the distillation process. The oil comes from the well, and where is it put then?

A. Into stills, and fires lighted and the vapors arise from the oil and are condensed.

Q. Pass through a worm?

A. Pass through a worm and go into the various distillate tanks.

Q. What comes over first?

A. Benzine, the lightest product.

Q. Then what comes off next?

A. Then comes the heavy naptha, and then comes, we call it, the top cut of the export oil.

Q. That is as the temperature increases, the heavier oils are volatilized, is that it?

A. Yes, sir. Then after the first cut of this export oil comes the water white cut, which is about from 52 down to 41 gravity. Then after water white oil is off, steam is introduced into the bottom of the stills, and this 34 gravity oil is thrown off by steam. This oil is then cracked up again or granulated and it is then pumped through stilling machines. The cold distillate is then——

Q. What is that process for, to remove the para-fine?

A. To remove the para-fine, and it is put into filter presses and the para-fine extracted, and the oil that remains is this 34 distillate; that is one process and the other process where we get the tar, there is no steam introduced into the bottom of the still at all. The whole mass evaporates down to about 22 gravity.

Q. What is the most profitable oil?

Mr. MATHEWSON: I object to that.

Q. Or grade of oil?

Mr. MATHEWSON: I object to that as wholly immaterial and irrelevant.

4799 The MASTER: I do not see the materiality of it, but I suppose the Senator will connect it with something later. I will allow it.

Mr. MATHEWSON: Exception.

Q. (Question repeated as follows: "What is the most profitable oil or grade of oil?")

A. Benzine.

Q. What next?

A. Then comes the cylinder oil.

Q. That is lubricating oil?

A. Yes, lubricating oils.

Q. What degree is that?

A. They run about 24 to 28 gravity.

Q. Then what next?

A. Then the water white.

Q. What does that run from in gravity?

A. Water white in about 47 gravity.

Q. Then what next?

A. The wax oil.

Q. That is the para-fine?

A. No, sir; that is the neutral oil.

Q. Oh. the wax oil you say?

A. Yes, the wax oil.
Q. What degree is that?
A. 34 to 36 gravity.
Q. Then what?
A. Then the export oil, 73 Abel; Abel is the name of the cup in which tested.
Q. 73 degrees Fahrenheit?
The WITNESS: Yes, sir; 73 degrees Fahrenheit on the Abel cup; we call it 73 Abel oil.
Mr. MATHEWSON: What gravity is that?
A. 44½ gravity is the official gravity.
Q. What next?
A. Tar.
Q. That about exhausts the product, does it not?
A. Yes.
Q. When you say a 45 degree oil or a 34 degree oil, does that mean an oil entirely of that degree or could it be fractionated into different degrees?
A. It could be fractionated.
4800 Q. That is in this 44 degree oil, if you should fractionate it, you could obtain some higher degree?
A. Yes.
Q. Is there any oil until you get down to the tar, or even then I suppose, that cannot be fractionated into several different degrees of Beaume test?
A. After you get down to coke in the still.
Q. I thought that when we had reached tar, we had reached the end of the product?
A. You reach the end of the product in the crude stills. The tar is——
Q. What comes next?
A. The tar is run on specially constructed stills, heavier bottoms and heavier stills and through a different condensing process.
Q. Then what do you obtain by that?
A. The first distillate we obtain is what we call gas oil.
Q. Then what do you get?
A. Then we get an intermediate oil, para-fine oil and heavy para--fine oil—or distillate I mean, intermediate distillate and heavy distillate.
Q. What are those used for?
A. We extract wax from the para-fine distillate and after the wax has been extracted the oil is put into reducing stills and run to what ever gravity is required, either 24 degrees, 28 or 23 para-fine.
Q. What is that used for?
A. Lubrication.
Q. Then of all of the oil that comes from the tar the gas oil is the cheapest, is it?
A. Yes, sir.
Q. You hav*ing* said the lubricating oils were rather expensive, before?
A. Yes, sir.
Q. Gas oil is known as a refuse, is it not, or not——

A. No, there is nothing lost in petroleum except the gases which you cannot condense. There is a use for everything.

Q. You have not produced the gas oil yet?

A. No, sir.

4801 Q. Produce the sample of gas oil.

(Witness produces sample.)

Q. What is this sample that you now produce?
A. Gas oil obtained from Pennsylvania tar.
Q. Of what degree is that?
A. That particular sample is 40 degree Beaume.

Mr. PAGE: I offer it in evidence.
Sample received in evidence and marked State's Exhibit FFF.

Q. Is the oil State's Exhibit BBB a product from the tar?
A. Which one is that?
Q. The first one.
The MASTER: That is the New York sample.
Mr. MATHEWSON: Yes, from the Consolidated.

The WITNESS: I could not say as to that.
Q. What is this sample that you now produce?
A. Pennsylvania tar.

Mr. PAGE: I offer it in evidence.
Sample marked State's Exhibit GGG.

Q. What does that tar sell for?
A. 2¾ cents per gallon, tank price, works.

Mr. PAGE: You may cross-examine.

Cross-examination by Mr. MATHEWSON:

Q. How long have you been in the refining business?
A. Since 1891.
Q. What is your firm or concern?
A. Emory Manufacturing Company.
Q. Is that a corporation?
A. No, sir.
Q. Are you one of the firm?

A. No, sir.

4802 Q. Do you have entire management of the works?

A. Yes, sir.

Q. Where are they located?
A. At Bradford, Pennsylvania.
Q. How long have you had such entire charge?
A. Since 1896.
Q. Are you a chemist?
A. I have taken a course in chemistry, yes, sir.
Q. Do you hold any degree?
A. No, sir.
Q. Are you an engineer?
A. No, sir.

Q. Have you ever been connected as manager or in other responsible positions with any gas company?
A. Not a manufacturing gas company.
Q. Did you make tests yourself showing 34 degree for Exhibit BBB?
A. Yes, sir.
Q. What did you use to make the test?
A. Hydrometer and thermometer.
Q. What hydrometer?
A. Beaumé.
Q. Whose manufacture?
A. We used—I could not say just what one it was, but it was either a Carbondale Instrument Company's or Tagliablue.
Q. You spoke about a thermometer. Did you make any use of that in your tests?
A. Yes, sir.
Q. What use?
A. Made a correction for temperature.
Q. Did you make a correction?
A. Yes, sir.
Q. What was the temperature?
A. 74.
Q. And what did the test show at 74?
A. 35, a little over 35, I don't remember just what was in the stick.
Q. And can't you tell exactly what it showed at 74 degrees or 75 degrees?
A. I cannot remember just what it was. There are the corrections for it in the books.
Q. But I am trying to ascertain what the corrections were?
A. There is a regular book for that.
4803 Q. Haven't you any data here from which you can tell the temperature?
A. Well, roughly in the hydrometers, for each degree above 60 they add one to the reading, and each 10 degrees they add one to the hydrometer reading.
Q. Well, was that what you did in this case?
A. Yes, sir.
Q. You——
A. I took the reading on the hydrometer, 35.4 at temperature 74.
Q. And then to reach your standard temperature which was what?
A. I substracted 1.4 from it.
Q. Well, you stated in the direct examination that it was a little over 34. Then you could not have substracted 1.4.
A. It was about 34 gravity.
Q. Corrected to what temperature?
A. 60.
Q. Have you ever dealt in oil from the Kansas fields?
A. No.
Q. Nor in the fields of Southeastern Ohio?
A. Yes, sir.

Q. Do you deal in that oil?
A. Yes, sir.
Q. Do you buy and sell it?
A. Yes, sir.
Q. Have you ever dealt in oil from the fields of the other part of Ohio?
A. Not directly, no, sir. Our firm has.
Q. Have you dealt in oil of any of these fields except Pennsylvania, Western New York and Southeastern Ohio and West Virginia?
A. No, sir.
Q. Have you ever dealt in Texas oils or Indian Territory oils yourself?
A. No, sir.
Q. And the most you can do is to state then that sample BBB you think is not from any of the territories which you have mentioned; that is, Pennsylvania, Western New York, Southeastern Ohio or West Virginia?
A. Yes, sir.
Q. Further than that you could not state?
A. I could not tell, no, sir.
Q. Is not there sulphur in Ohio oil?
A. Yes, sir. Not in the Southeastern, not in Monroe, Jef-
4804 ferson or Washington Counties.
Q. What do you call Southeastern Ohio, those three counties?
A. As to crude, it is the oil for which $1.58 per barrel is paid, the same as Pennsylvania oil.
Q. But I am talking about the territory. You say Southeastern Ohio. Do you mean the three counties you have just mentioned as Southeastern Ohio?
A. In the oil region we call it Southeastern Ohio.
Q. But I am trying to find out what you mean, because that is rather a broad term. The Southeastern Ohio, as you used the term now, in reference to this oil production, includes the three counties you have named?
A. Includes Jefferson County, Monroe County and Washington County, that I am familiar with in Ohio.
Q. Do you mean to say there is no sulphur in any of the oil produced in any of those counties?
A. No, sir.
Q. You do not mean to say so?
A. I know there is not.
Q. Then you do mean to say there is not?
A. I do mean there is no sulphur there.
Q. How about Southwestern New York?
A. That is what is known as Pennsylvania oil.
Q. Any sulphur there in any case?
A. No.
Q. Nor in West Virginia?
A. No, sir.
Q. And none in any of the Pennsylvania oils?

A. No, sir.

Q. Now the sample Exhibit CCC, which has been introduced here, if I understand you, is a distillate oil; is that right?

A. Yes, sir.

Q. Distilled from tar?

A. No, sir, distilled from crude.

4805 Q. And you say that it is a 34-gravity distillate and is used for fuel and gas oil?

A. Yes, sir.

Q. Then gas oil is not all produced from tar?

A. No, sir.

Q. It is produced by distillation from the crude oil?

A. Yes, sir.

Q. And the most of the gas oil that you are familiar with is produced by distillation from the crude oil, is it not?

A. Yes, sir, at least in our works. I am not familiar with any other refinery except ours.

Q. Now, the Emery Manufacturing Company is what is known, speaking of oil producers, as an independent concern, in that it has no relations with the Standard Oil Company, is it not?

A. No, sir, it is not.

Q. It is not a trust or anything of *our* sort?

A. No.

Q. Have you a pipe line?

A. Yes, sir.

Q. What is the name of that?

A. Emory Pipe Line.

Q. And it runs from where?

A. It is local, collecting lines, in the Bradford oil fields.

Q. And your operations in production are confined to the Bradford oil field, are they?

A. I have no production.

Q. Well, the Emery Manufacturing Company, or do they not produce oil?

A. No, sir, they do not produce oil.

Q. They simply refine?

A. Yes.

Q. And can you say from your own knowledge what the oil is which is sold by the Standard Oil for lubricating oil?

A. What the crude or different parts——

Q. Do you know what the description is?

A. They sell all kinds of lubricating oils.

Q. You say there was a certain kind the Standard Oil

4806 Company sold for lubricating oil?

A. They sell neutrals, cylinder oils and paraffine oils and all grades of oils.

Q. Different grades for lubricating?

A. Yes, sir.

Q. There is not any special grade for lubricating oil, is there?

A. They have special oils for special purposes.

Q. To meet different machinery conditions?

A. Yes, sir.

Q. In reference to this export oil which you say is quoted at 4.4 cents f. o. b. the tank boat, New York Harbor, have you ever sold any export oil for use for gas making?

A. No, sir.

Q. Nor any of it in New York City, have you?

A. We have sold export oil on board the vessel in the harbor.

Q. That does not include the transportation across the Bay?

A. No, sir that is the price f. o. b. vessel.

Q. Of course it would not include the charge for unloading at the dock and the transporting to the place where it was used in New York City?

A. It would include the lighterage charge f. o. b. vessel.

Q. But it would not include the transportation across the harbor?

A. No.

Q. Or from the dock in New York to the place where it was to be used?

A. No, sir.

Q. Nor storage, of course?

A. No, sir.

Q. How much of this export oil 4.4 cents does your company sell in a year, say in the past year f. o. b. New York Harbor?

A. We do not sell any in New York Harbor.

Q. How much in Philadelphia Harbor at 4.35 cents?

A. About twelve to fifteen thousand barrels a month, 50 gallon barrels.

Q. How much would that be in a year, how much in a year do you deliver of that export oil, 4.35 cents f. o. b. Philadelphia?

A. It is not always the same, it depends upon the ships and the sales.

4807 Q. Generally?

A. Twelve thousand to fifteen thousand a month, one hundred and fifty thousand to one hundred and sixty thousand barrels a year, possibly more.

Q. How much does a barrel hold?

A. Fifty gallons, a refined barrel.

Q. A what?

A. We call a refined barrel 50 gallons and a crude barrel 42 gallons.

Q. This would be a refined barrel?

A. Yes, sir.

Q. And the difference between the export oil Exhibit DDD and the yellow oil from which oil Exhibit EEE would be, you say, only 1-16 cent per gallon?

A. Just across the shade, yes, sir.

Q. Now, I understand that No. 28 degree test Beaume oil which is produced from Pennsylvania oil sells for more than the 34 gravity oil?

A. More than the 34 gravity fuel oil, yes, sir.

Q. Well, more than the 34 gravity oil which you have introduced here as Exhibit CCC?

A. Yes, sir.

Q. How much more per gallon would it sell than Exhibit CCC?

A. We would not sell 28 gravity steam refined oil for less than 5¼ or 5½ cents a gallon at our works.

Q. And what would that mean f. o. b. New York Harbor if it was to be transported here? ?

A. In tank cars it would be 1.05 cents a gallon additional.

Q. Have you ever analyzed Texas or Indian Territory oils to know whether the base is asphalt there?

A. Yes, sir, I have analyzed Texas oil.

Q. And you found that to be so?

A. Yes, sir.

Q. When you speak of the most profitable oils in the treatment of petroleum, exactly what do you mean, the most profitable to the refiner?

A. Yes, sir.

Q. Well, what elements enter into that?

A. The price.

4808 Q. Well, expense of treating?

A. No, sir.

Q. You simply mean the price at which they are sold?

A. Yes, sir, the highest price.

Q. So what you mean when you say the most profitable oil, is that benzine sells for the highest price, and lubricating oils, 24 and 28 degrees next highest, and water white 47 degrees, next highest price, wax oil, 34 to 36 degrees, next highest, and then the export 73 Abel, is that it?

A. A-b-e-l, yes, sir.

Q. 44½ degree next, and then comes the tar and the distillates, if you distill the tar?

A. Yes, sir.

Q. And when you speak of the oil being the cheapest as you gave the list, you merely begin at the other end of the scale and go up?

A. The lower price, yes, sir.

Q. Will you tell me the percentages of production of these various oils which you have given in order of their selling price in a given quantity of petroleum?

A. Take 100 gallons of petroleum, we get 12 per cent. of benzine; the next, I believe, was the lubricating oils?

Q. Yes.

A. Fifteen per cent. of lubricating oil.

Q. And the next was water white, 47 degrees?

A. From our Bradford crude, we get about 12 per cent.

Q. And then the wax oil, 34 to 36 neutral oil?

A. The price of that is not the highest, but the wax at the price of the oil brings it up next in value.

Q. Well, altogether, how much does that amount to in percentage between the oil and wax?

A. I should say about 20 per cent. of that.

Q. And then the export 73 Abel?

A. About 6 per cent. lost, and the balance would be the export. It would be the difference between that and the 100 per cent. There would be 6 per cent. lost.

Q. Then 65 per cent. would be the export?

4809 A. No, 6 per cent. lost, leaves 6 there, and the balance would be the export.

Q. That would leave 65 per cent.?

A. It would not be that high, would it?

Q. No, 35 per cent.

A. Yes.

Q. And 6 per cent. is lost?

A. Yes, sir.

Q. What about the tar?

A. The tar comes in another process, that is the cylinder oil process.

Q. But where does that percentage come here, in reference to tar?

A. No, the other way it is 12 per cent. benzine and about 70 per cent. in refined and the balance would be tar and loss.

Q. In other words you mean there is about 12 per cent. of benzine and 70 per cent. of refined oil?

A. In the different processes of refining, yes, sir.

Q. This would make about 82 per cent.?

A. Yes, sir.

Q. And the balance is loss and tar?

A. Yes.

Q. Where does the tar come from?

A. From the crude.

Q. In what process?

A. In running to tar, we call it.

Q. And what percentage of the whole 100 per cent. original would you consider as tar?

A. About 7 per cent. tar.

Q. Now what portion of that 7 per cent. is gas oil if you distilled gas oil from tar?

A. About 12 to 15 per cent.

Q. About 12 to 15 per cent. of the 7 per cent?

A. Yes, sir.

Q. That would be 12 per cent. of 7 per cent., which would be about one per cent. of the crude, is gas oil, from tar?

A. Yes, sir.

Q. If you run it in that way?

A. Yes, sir.

Q. What is the benzine used for?

A. It is used for making gasoline, principally.

Q. For motor cars?

A. Yes.

4810 Q. And the demand for motor cars and so on has raised the price of benzine almost out of sight in the last few years, has it not in the last few years?

A. Yes.

Q. Now, do you know anything about the Muskogee oil, greenish in color?

A. Yes, sir.

Q. Is it not true that Muskogee oil, which is an Indian Territory oil has a parafine base?

A. Yes, sir, but there is very little of Muskogee oil produced.

Q. Well, are you sure that there are no other oils produced there and in Texas that has not a parafine base as well as the Muskogee oil?

A. Not that I know of. The Muskogee is the only one.

Q. As far as your information goes?

A. Yes, sir.

Q. Of course you have not examined all the wells in Texas and Indian Territory, and your statement is from information and not from actual tests, is it not?

A. I have examined the Muskogee oil and I have examined the Texas oil.

Q. There are various fields in Texas, are there not?

A. Yes, sir, several of them.

Q. Do you mean to say you have examined all of them?

A. I have examined oil from Spindle Top, the first well they drilled there.

Q. How much crude oil does the Emery Manufacturing Company handle in a year?

A. Do I have to answer that.

Q. You would rather not answer that?

A. I don't think that——

Q. I say would you rather not answer it?

A. Yes. It is published. We use about 1,200 barrels a day in our works, of forty-two gallons.

Q. How much 34 degree oil do you produce?

A. About 20 per cent.

Q. And the 28 degree gas oil, would be this additional one per cent. that we were discussing?

A. Yes.

4811 Redirect examination by Mr. PAGE:

Q. That additional one per cent., is that a 28 degree gas oil?

A. No, sir.

Mr. MATHEWSON: I did not intend to mislead you. I was thinking of the 28 degree oil.

Q. What degree oil is that?

A. Our gas oils, from 38 to 40 degrees.

Mr. MATHEWSON: That is from the tar?

The WITNESS: Yes.

Q. The tar is a distillate from the crude oil?

A. No, it is a residual, it is not a distillate.

Q. Well, when you put it through the next process, whether it is called distillation or not?

A. Yes, sir, it is called distillation.

Q. In your first process you distill these illuminating oils which you spoke of?

A. Distill the crude oil and the second we distill the tar.

Q. And then the residual is put through another process and you distill the tar?

A. Yes, sir.

Q. So that everything except coke is really a distillate of the crude oil, is it not?

A. Yes, sir.

Q. In the price that you have quoted on the 34 degree oil, you included the lighterage charge?

A. We include the terminal charge.

Q. I mean 45 degree, or whatever it is, this 73 Abel?

A. It includes the terminal charge.

Q. And you said also, I believe, f. o. b. on the steamer, which would include the lighterage charge?

A. The steamers go alongside of oil yards, alongside the pier.

Q. Well, it includes the charge to the steamer for dockage, does it, is that what you mean by terminal charge?

A. No, if it is shipped in tank cars, the oil is unloaded in
4812 the storage tanks, and allowed to stay there until the steamer comes to load, and the man owning the pier gets the charge from the steamer.

Q. You deliver it alongside, f. o. b., then?

A. Deliver it into the ship.

Q. Then this price includes the storage charge?

A. Unloading the tank cars.

Q. And unloading the tank cars?

A. And pumping the oil from the storage tank into the vessel.

By Mr. MATHEWSON:

Q. Is the tar distilling process which you have described, and from which you get this one per cent. of gas oil, supplementary to the process which you first described?

A. Yes, sir.

Q. It is not an independent process apart from the process that you first described?

A. It is an independent process from the crude, yes.

Q. I think you have answered the question both ways. Won't you make it clear? I don't understand, quite. I asked you first is the tar distilling process by which you obtained the one per cent. of gas oil supplementary to the process which you first described?

A. No, sir, it is not supplementary.

Q. Or is it an independent process?

A. It is an independent process.

Q. Apart *for* the process you first described?

A. Yes, sir.

Q. Is not the tar obtained by the first process?

A. Yes, sir.

Q. Then it is an independent process?

A. Yes, sir, both.

Q. What makes the difference between the white Exhibit DDD and the yellower Exhibit EEE from which Exhibit DDD comes?

A. Exhibit EEE is a white distillate.

Q. I understand that, but what element is it which is eliminated to produce the white oil?

4813 A. The color or impurities are absorbed by sulphuric acid.

Q. Do you know what the impurities are which are so absorbed?

A. No, sir, nor anybody else, I guess.

By Mr. PAGE:

Q. Your gas oil which you produce in the independent process from tar could be produced in the same distillation, could it not?

A. Yes.

Q. Without treating it in an independent process?

A. You could not get this oil FFF from the crude, you get this from the crude, Exhibit CCC.

Q. And the Exhibit CCC is of more value or brings a larger price than the Exhibit FFF?

A. Not with us; it brings the same price.

LEWIS EMERY, JR., called as a witness in behalf of the defendant, the State of New York, being duly sworn, testified as follows:

Direct examination by Mr. PAGE:

Q. Senator Emery, where do you reside?

A. Bradford, Pennsylvania.

Q. What is your occupation?

A. Oil producer and refiner and several other lines of business.

Q. What is your position in the Emery Manufacturing Company?

A. I am the proprietor of it.

Q. You say that you are also an oil producer?

A. Yes, sir.

Q. And where have you wells, Mr. Emery?

A. In nearly all the oil fields.

Q. Have you in the Indian Territory?

A. Yes.

Q. And Texas?

A. Yes, sir.

Q. Do you have in the different Texas fields?

4814 A. No, really there is not very much field there now, it is pretty well played out.

Mr. MATHEWSON: Did he name the fields?

The WITNESS: I can name you the fields which were producing oil in large quantities.

Mr. MATHEWSON: No, but I did not know in what fields you said you operated.

The WITNESS: Well, they were in Matagorda and Humble.

Q. You are familiar with the prices paid for oil in the different sections?

A. Yes, sir, wherever we have production, and with the prices where do we not produce.

Q. What is the price at the well of what is called Pennsylvania oil?

A. $1.58. There are some grades of oil in Pennsylvania field that bring a higher price than $1.58 at the wells.

Q. Is that a 42-gallon barrel?

A. Yes, sir. There are only one or two fields, there is the Tiona field, I think that is the only field.

Q. The price $1.58 is per barrel, is it?

A. Per barrel of 42 gallons each at the well.

Q. What are the prices paid for Texas oils at the well?

A. I don't know, I have a list here I think some place.

Mr. MATHEWSON: Well, I think the witness should testify from his own knowledge. He ought not to testify from circulars.

The WITNESS: Well, the last we sold over there about two months ago, we got 35 cents for it.

Mr. MATHEWSON: At the wells?

The WITNESS: Yes, sir, at the well.

4815 Q. Now, what is the price in other fields where you have wells?

A. In the Kansas field, according to the gravity, 32 gravity brings 39 cents. We have a very large production there for which we obtain 39 cents. It is sold, at least, on gravity.

Q. And the Indian Territory?

A. The same, Kansas and Indian Territory, based on gravity. It is known as Kansas in the market, not as Indian Territory.

Q. Do you know of 28 degree gas oil?

A. No, sir, I do not.

Q. There is none of that 28 degree gas oil produced from the Pennsylvania oil?

A. No, sir. That is in the lubricating gravities, in the Pennsylvania oils.

Q. Do you know whether that would be a lubricating gravity in Texas oil?

A. No, I do not.

Q. Do you know as to the gravity of the crude oil, the difference between Texas oils and the Pennsylvania?

A. The difference in gravity, yes, sir.

Q. Will you state what that is?

A. The Texas runs about 23 and that of Pennsylvania ranges from 40 to 45.

Q. From your knowledge of the Texas oil and your knowledge of the Pennsylvania oil, could you produce the 34 degree gas oil from Texas oil at a lower price than you could from the Pennsylvania oil?

A. Yes, sir.

Q. And sell it at a much lower price?

Mr. MATHEWSON: Whether you could sell it for a much lower price? It is not a question of ability; it is the inclination. I suggest that it is a conclusion.

Q. Well, it could be produced for very much less?

A. I didn't understand your question.

4816 Q. I say it could be produced for very much less?

A. You mean per barrel?

Q. Per gallon.

A. In manufacturing it or the production of the oil, the cost of production.

Q. Take the cost of production of your Texas oil, could you produce a 34 degree gravity oil at a much less price?

A. Are you referring to the cost of producing it or refining it?

Q. Both combined; at a less price than you could from the Pennsylvania oil?

A. That is very problematical. I don't know what it costs to produce a barrel of Texas oil on an average. It has been an uncertain field and an expensive one.

Q. I refer to the prices you have given as to the selling price at the well——

A. If you refer to the cost of manufacture, buying and purchasing and manufacturing it, you can produce oil much cheaper than for an oil you pay 35 or 40 cents than $1.58.

Q. That follows from the difference in the price of the crude oil?

A. Certainly.

Q. Now, as to the lubricants and the degree of the lubricating oil, how does that vary with the figures of the crude oil? Would you get as much lubricating oil from a Texas oil of from 23 to 28 degrees Beaume as you would from the Pennsylvania oils which run 40 to 45?

A. Lubricating oils?

Q. Yes.

A. I don't know. We never run any lubricating oils on any oils of Texas at all, and I don't know what the percentage of lubricating oils is. I do not know anything about it. Certainly the quality is not there. The prices are very much cheaper in lubricating oils made from Texas oils than they are made from the Pennsylvania oils.

Q. Did you make an examination of this sample, exhibit BBB?

A. I closely observed when the examination was going on, I observed every moment. I did not handle the instruments but I saw it.

4817 Q. Did you subject the oil to the test of smelling it?

A. I did.

Q. Can you tell from that where the oil came from?

A. It is an oil that contains sulphur. It is not a Pennsylvania oil, in my judgment.

Q. Are there any other facts that lead you to the same conclusion, that is, that it is not a Pennsylvania oil, besides the smelling it?

A. No, I don't know that there is. That can be ascertained from what we call the "chilling" process; tell very quickly.

Q. But you did not subject it to that?

A. No, sir, we did not. We could tell whether they are asphalt oils or para-fine oil by the "chilling" process.

Q. Are there any other fields in which that you are familiar with the prices of the crude oil at the well?

A. Yes, sir.

Q. In keeping yourself informed as to the quotations?

A. Yes, sir. In Indiana I know the prices there, and we have a production in Ohio and in Illinois.

Q. Outside of what is known as Pennsylvania oil?

A. Yes, sir.

Q. Give those prices?

A. We also have a production in Eastern Ohio; that is produced from what you call the white sand oils; Western Ohio and Indiana oils are produced from Trenton limes, which contain the sulphur.

Q. What are the prices of those oils that contain the sulphur?

A. Ohio oil brings 85 cents, Indiana 85 cents, and Illinois 67, or 64 at the present time. There is a grade of oil in Ohio in the Lima district that brings 90 cents. That is per barrel of 42 gallons each.

Q. From these oils also the 34 degree oil could be refined
4818 and produced at a less price than from the Pennsylvania oils, could it not?

A. Yes, sir, certainly.

Q. And how about the 28 degree?

A. Well I don't know that product.

Q. Well, 28 degree is an entirely different product?

A. Yes, an entirely different product. I don't know how they get it, I don't know what it is, I never saw any of it.

Q. The Standard Oil Company have agreed to furnish within two years and eight months 255,000,000 gallons of oil, 40 per cent. of which must be 34 degree Beaume oil. Could that amount of oil be produced in the Pennsylvania field, in the Pennsylvania oils?

A. It could be produced, certainly. There is a production in Pennsylvania, in the Pennsylvania field, of 62,000 barrels a day or 2¼ millions a year. It could be produced from the oil, but whether it could be produced from the tar—possibly it could be produced from the tar, based on one per cent.

Q. That is from the entire field of the Pennsylvania oil?

A. Yes, sir, that is the entire production of the Pennsylvania oil.

Q. Could it be produced from the wells owned or controlled by the Standard Oil Company in the Pennsylvania fields?

A. Oh, no, not from their wells, because they are transporters; they are not as a rule producers. They have got production, but not sufficient, I assume, to produce all the gas oil that they sell.

Q. From what you know of the oil market for Pennsylvania oil, knowing what others buy and what others take from that field, would it be possible to fill this contract?

A. Now, that is a very broad question. They certainly could, because they could fill that by taking the whole body of oil. There is no question about it. They could run it all into you, as
4819 far as that is concerned, but if you are getting down to the question of getting it from the tar or getting it from what we call a tar distillate, that is another thing.

Q. Could they furnish 34 degree oil at less than five cents a gallon?

A. Could they?

Q. Without losing money?

Mr. MATHEWSON: Objected to.

The MASTER: I think you are getting pretty far, Senator.

Mr. PAGE: I think so myself. I certainly misunderstood what the witness told me in my office.

Q. What is meant in the oil market by a homogen-ous oil?

A. Well, I suppose it is a kind that is very seldom used, and I suppose it is an oil distilled, take the crude oil distilled, and all the qualities coming from that distillation when mixed give homogeneous, but the term is something that is very unusual and I do not understand it. We understand about homogen-ous steel but I never saw that in a contract and I never saw the term used before in my life.

Q. It really has no——

A. I don't see any significance to it, it is not a trade term.

Q. Could you take State's Exhibit EEE and mix *taht* with a 28-degree gravity oil and produce a 34 degree gravity gas oil?

A. Yes, sir.

Q. And that would be a lower priced oil than the 34 degree oil of the Pennsylvania fields, would it?

A. It would be a lower price.

Q. An oil that could be sold at a lower price or would it be produced at a lower price?

A. If you take the Pennsylvania product, do you mean?

Q. Not taking 28 degree Pennsylvania?

A. Yes, sir; a less price.

4820 Q. Taking the 28 degree oil from other fields?

A. Yes, sir.

Q. You have read or heard read the contract between the Standard Oil and the Consolidated Gas Company that is in evidence here?

A. I saw a portion of it, relative to the price, yes, sir.

Q. Is there anything in that contract that leads you to suppose or believe that it does not call for Pennsylvania oil, and if so state what?

Mr. MATHEWSON: If there is anything ambiguous in the contract it might be susceptible——

The MASTER: I think that question is objectionable, Senator.

Mr. PAGE: I will withdraw the portion which says "If so, state what".

A. It does not specify what field it is to come from.

Cross-examination by Mr. MATHEWSON:

Q. You spoke of Texas oil and their selling at 35 cents at the well. What gravity?

A. About 23.

Q. And you say that the supply is pretty nearly gone in Texas?

A. Yes. It is principally confined to the stocks.

Q. "Petered out", as the expression is?

A. Yes.

Q. Is all Texas oil of the same gravity?

A. All that I know of.

Q. The same in Kansas and Indian Territory?

A. No, sir.

Q. Well, I mean is all Kansas oil the same gravity?

A. No, sir, that varies. There is some down there as low as 18 degrees.

Q. Eighteen to what?

A. Up to 32. There is a little up there produced at 37.

Q. And when you say 39 cents you refer to the 32 gravity oil?
A. Yes, sir.
4821 Q. How about Indian Territory?
A. Same thing. It is all sold on gravity.
Q. You said that you did not know of a 28 degree gas oil?
A. No, I do not.
Q. If a contract was made for gas oil of less than 28 degrees you would expect it to run over 28 degrees, wouldn't you, in test, on the average?
A. It would be 28 or above.
Q. You would expect it to be above, wouldn't you?
A. No, not necessarily. I would expect it to be according to the contract. It can be made so.
Q. When you say then that you do not know of 28 degree gas oil, what did you have in mind?
A. I don't know. This is a merchantable product in our works.
Q. When you were asked whether 34 degree oil could be produced from Texas oil down to the final delivery, including the production and the refining and the transportation to a given point, say New York City, I understood you to say that that was something that you could not tell?
A. No. I said it could be produced cheaper.
Q. What were you about to say in that line?
A. I don't know.
Q. Didn't you say you could not tell?
A. No, I said I could tell. I said when you get down to ask as to the cost of producing oil in the Texas field that I could not answer that. The misunderstanding was whether producing a refined product or producing it from the earth.
Q. Can you get as much 34 degree gravity oil out of a gallon of Texas oil as you could out of a gallon of Pennsylvania oil?
A. No, because there is more—there is a larger percentage of base product. It is asphalt and tar and so forth.
Q. Taking a gallon of Pennsylvania oil and a gallon of Texas oil, the value of the 34 degree oil that you would get out of the
4822 Pennsylvania oil would be greater than the value of the 34 degree oil which you get out of the Texas oil?
A. Based on the cost of crude, certainly. That does not mean but what you could produce it very much cheaper from the Texas oil.
Q. No, it may not, but it would not be in proportion to the cost, because if you have Texas oil at 35 it is only 23 gravity.
A. If you take it in the proportion to the cost, why Texas would be away down below it. Produce it for half the money; less than half the money.
Q. You could produce it at the wells?
A. No, sir; produce it as a product, 34 oil.
Q. If the refinery was in Texas?
A. Yes, transportation is no more from there than it is from our place, by ship.
Q. You have to transport it to the ship from the Texas oil fields?
A. Yes.

Q. And then ship it?

A. We send oil to Germany to-day cheaper than we can send it from our refinery to New York.

Q. You sell it in Germany cheaper than you do in New York?

A. Yes.

Q. So that the price of oil exported is not necessarily the price at which you can purchase it in the United States?

A. No, sir.

Q. And that is so of many things?

A. There is a combination in the United States that they won't permit in Germany or any other foreign country. That is what we are fighting against.

Q. That is true of a great many other things?

A. Yes, we take the cake in this country for sole proprietors. That is what we are against.

Q. You are an independent producer?

A. I am, sir; and a refiner.

4823 Q. And a competitor of the Standard Oil Company in that field?

A. Yes, sir.

Q. Supposing you took Pennsylvania oil and mixed it with a small portion of oil from another field which had sulphur in it, then, of course, the mixture would show sulphur, no matter how small the admixture of other oil might be?

A. Certainly, there would be some sulphur in it.

Q. In other words, it would not indicate that all of the oil came from outside Pennsylvania, from the fact that in a particular oil you found some sulphur?

A. I think the tars all run together and are distilled—the tar from Texas, tar from Pennsylvania, tar from Ohio. It makes just as white a candle and makes just as good wax, if there is any wax in it.

Q. You were asked whether an admixture of the 28 degree oil with Pennsylvania 34 degree oil would not cost less than the 34 degree oil. As a matter of fact you would take Pennsylvania oil 28 degree and Pennsylvania oil 34 degree, it would cost more than the 34 degree I mentioned, wouldn't it?

A. It would on your prices, yes, sir. The prices you get for it.

Q. It would on the price you get for it?

A. No; not if they buy their oil in Texas at 35 cents.

Q. No, I am not talking about Texas. I say if you take 28 degree oil produced in Pennsylvania and mix it with a 34 degree oil produced in Pennsylvania, the mixture would be worth more than a 34 degree oil alone of the same quality?

A. I say not based upon your contract.

Mr. PAGE: My question was as to a mixture of 28 and 45, not 34.

Q. Well, you take the export oil, 44½ degrees produced in Pennsylvania and mix with it Pennsylvania oil of 24 and 28 de-

4824 grees and the mixture would be worth more than the same quantity of 44½ degree oil straight, wouldn't it?

A. When we get up into those gravities it is lubricating oil and it is more valuable. We do not do that.

Q. I know you do not do that, but if you did do it the mixture would be more valuable than the export 44½ degrees?

A. It depends entirely upon the price of the lubricating oil, the price of the goods.

Q. Yes, but your son has testified that you get more for the oils of 24 to 28 degrees?

A. Certainly we do.

Q. Than you get for the export oil of 44½?

A. Certainly. It is on account of the viscosity.

Q. Then a mixture half and half we will say of 44½ degree oil and of the 24 to 28 degree oil would be——

A. Of all lubricating oil, you mean?

Q. Yes, would be worth more.

A. Because our lubricating oil brings a higher price than the 34 does.

Q. And it brings a higher price than the 44½ export?

A. Now, I will say yes, but if you take this gas oil and mix it with lubricating oil you will get a less price.

Q. Which gas oil?

A. This, this gas oil.

Q. That is Exhibit FFF, from your tar product?

A. Yes. That is what I suppose that the gentleman (Mr. Page) meant in his question.

Mr. PAGE: My question was not based on the 28 degree Pennsylvania oil. I excluded that.

Mr. MATHEWSON: I understand.

The WITNESS: Now, I say yes, if you take 28 degree lubricating oil it brings a higher price than the illuminating, but we do not do that. This is what we sell for gas oil (Exhibit FFF).

Q. I understand, but if you were to do that the mixture would be worth more?

4825 A. Yes, but in our 28 oil and the 28 from Texas or Kansas, there is just as much difference as there is difference between day and night.

Q. So it has been testified.

A. Yes. You see, if I may be permitted to answer that question a little bit further: There are 200,000 and odd barrels of oil handled every day now, of the pipe lines from the wells. The other they put in storage or manufacture. Of that there is only 62,000 barrels of high grade oil per day.

Q. What do you mean by high grade oil?

A. I mean the Pennsylvania, $1.58. All the rest are second-grade oils running down as low as 28 or 26 cents a barrel.

Q. I see it is alleged in the Government suit against the Standard Oil Company in St. Louis that the Standard Oil Company sells, as I recollect, over 90 per cent. of the entire product of the United States in petroleum oils?

A. I think so. I would not be surprised if that was so. We cannot ship ten rods from home hardly, on the railroads.

Q. The contract dated November 1st, 1905, between the Standard Oil Company and the Consolidated Gas Company to which reference has been made, calls for 40 per cent. of 34 gravity, with the privilege to the company by a certain notice of taking 45 to 50 per cent.?

A. Yes.

Q. Now, when you say that the Pennsylvania oil fields would produce enough in two years and eight months to furnish that amount of oil, 34 degrees Beaume, do you refer to the fields that are controlled by the independent producers or by them and the Standard Oil Company together?

A. I referred to the fact that they could deliver you any amount of oil under that contract if they only ran it down to 28 and gave it to you.

Q. From the Pennsylvania field?

4826 A. Certainly they could, if they distilled it down to 28 and gave it, yes; distilled it down to 28 and give you the balance, give you any quantity of it.

Q. Does the Standard Oil Company control then, substantially, the greater part of the output of the Pennsylvania fields?

A. They control the transportation of it.

Q. Do they not control the output?

A. No, sir.

Q. Don't they sell the output of the greater part of the Pennsylvania field?

A. Certainly they do. I am talking about the controlling of the production. You are talking about the control of the market. They have the control of the market, supreme.

Q. I am talking about the control of the output when it goes to the consumer, and ask——

A. Yes, certainly.

Mr. PAGE: That is the same as the market.

The WITNESS: They make the market. That oil to-day is worth more money that we get for it, but they have the ability to get more out of these gas companies because they are the sole proprietors of this transportation and they oblige the producer to sell his oil for less than it cost.

Q. That oil to which you just referred is export oil, DDD, isn't it?

A. They would make more money entirely if they used the crude oil.

Q. That is the export oils DDD, to which you referred?

A. Yes, and we are selling that at less than they are paying you for this oil product distilled, which we used to throw in the streams.

Q. And less than it is worth, you say?

A. Less than it cost, and the other they are selling at a great deal more than it costs, an enormous, big profit.

By Mr. PAGE:

Q. What is the price at which you sell that 34 degree gas

4827 oil which is made from tar?

A. No, that is not made from the tar. That is a distillate—it is a neutral. This is the tar (Exhibit EEE).

Q. The neutral is Exhibit CCC?
A. That's it. Now, they will get about 20 per cent. of that stuff out of your products, if you want it.
Q. The question is at what price does that sell?
A. What we sell it for?
Q. Yes.
A. 3¼ cents.

By Mr. MATHEWSON:

Q. Where?
A. At the works.
Q. How much f. o. b. Philadelphia?
A. Well, we add to that $1.05 for freight per gallon and that makes it 4.30.
Q. That would mean delivered on the other side of the harbor?
A. That means in Jersey.
Q. And does not include the lighterage and the transportation form the dock on this side to the consumer?
A. No, sir.

At 1:15 P. M. a recess was declared till 3 P. M.

After Recess.

HENRY H. EDGERTON resumed.

By Mr. PAGE:

Q. Mr. Edgerton, have you given some consideration to the question of delivering gas in the City of New York at a more uniform pressure?
A. Yes, sir.
Q. In what way should the gas be delivered to the mains from which services are taken off at a more uniform pressure than it is now?
4828 A. The system would involve a few high pressure mains running up to 15 or 20 pounds or to such a pressure as would not impoverish the gas to any appreciable extent, and govern the pressure of the gas into the service mains of the company by means of a governor or by means of valves, regulated by hand or a workman if preferred, although the governor would be the most equal method and its action could be watched by a watchman at the important points.
Q. Taking into consideration the New York condition, where would you place those high pressure mains?
A. The high pressure mains run on each side of the City, being made of the largest diameter near the most important and congested districts, and running parallel with the shore, running from the Battery to the Ship Canal. I have estimated on the delivery of 8,000,000 cubic feet per hour under a pressure of 15 pounds in two mains of 24 inches diameter. The mains could be reduced from 24 inches to 20 inches, 16 and 12 inches toward the ends. And from these mains deliver by the governors into the larger mains and also

into the service mains. There would be no need in this provision of which I speak to lay pipes across the City having any considerable pressure at all. The present piping being so nearly adequate to delivering an equal supply, that governing them into the large cross-mains would be all that is required. By such a system as this I am satisfied that the pressures could not only be controlled within a variation of an inch and a half, but possibly one-fifth of that. I have put in such a system, and I find that by using that in connection with the governor in the low pressure mains that the gas can be supplied with the greatest regularity, much more so than by using large mains as supply mains.

4829 Q. By the supply mains——

A. I mean what some one called trunk mains.

Q. How would you proportion these mains? You stated, starting with a 24-inch main and after that proceeded some distance, with a 20-inch main and a 16-inch main.

A. Well, the question of proportioning the sizes would be dependent upon making observations in the district and ascertaining where the greatest amount needed to be delivered. Of course, I could not more than suggest the length of the 24-inch main on each side, it probably would be restricted within three or four miles in length, possibly less.

Q. And do you think that those pressure mains could be connected with the present system of pipes without great changes in their distributing system?

A. It would not require any change at all in the distributing system, only a due regard to the points of introduction of the gas by means of the governor and the selecting of a governor of a reliable character to handle the gas.

Q. What do you say as to the operation of this system after it was installed, the cost of operation?

A. I may say to begin with, to explain, that as early as 1871, after having made analysis of the gas, and ascertaining the permanent character of the gas, and that it did not lose but very little light on compression, I introduced a system of compressed gas on railroad cars, first, and that led to finally the use of the compression system as a means of distribution. The beginning of it as a means of distributing to low pressure mains, was in 1889, and it has continued successfully ever since. Also I used the same system as applied to manufacturing gas in one locality and transferring it to another locality. That has given data in regard to the cost of compression which is sufficiently reliable. I have made a calculation that,

4830 assuming the greatest output in New York City to be 8,000,000 of cubic feet in the heaviest hour's output, taking a pressure of 15 pounds per square inch, the cost per horse-power of one-half cent per horse-power hour, the cost per hour during the heaviest hour would be about $30 for compressing all the gas in New York City. I have also been in consultation with parties furnishing very large compressors to the natural gas fields, and have made quite a number of investigations in the use of those pumps, so that I know they op-

erate quite as well on a large scale, and better even, than they do on the small scale on which I first introduced them.

Q. Is there anything more that you desire to say on that subject that has not been covered by my questions?

A. Well, I might say that I saw in New York an arrangement for pumping gas through mains, the only difference being that the pumping was carried at such moderate pressures that they did not develop anything like the economy that the system is capable of. For illustration here, I have taken the amount of gas delivered with a loss of one inch water pressure to three thousand yards of main pipe, 24-inch main pipe.

Mr. MATHEWSON: Where, here?

The WITNESS: No, this is simply to give a basis. They would deliver about 92,000——

Mr. MATHEWSON: I shall object to that.

Q. That is just a verification of your figures?

A. It is to show the immense economy in main investment that could be accomplished by putting the gas at a little higher pressure than the ordinary pressure. The delivery increases through a pipe a little over the square of the diameter of the main and therefore——

4831 Q. What do you mean by that?

A. I mean a main of 8 inches would take more than four times as much gas as a main four inches.

Q. Under the same pressure, do you mean?

A. Under the same pressure. Then again——

Q. As you increase your pressure how does that increase the delivery?

A. As you increase the pressure it increases by the square root of the pressure, not directly but of the square root very nearly.

Q. You say you have observed some pumping of gas in this City. Where, in the works of the Consolidated do you mean?

A. Yes, I saw them have an exhauster, a gas handling station at the 14th Street Station in which they have engines and a pump of lower capacity; that is, it is in the form of an exhauster and is used to transfer gas around the mains in various directions. I did not note all the connections they had on a board which indicates it, but I saw the station was for the purpose of delivering gas independent of delivering it through ordinary mains, I took it to be. I also read a paper by Mr. Bradley in regard to pumping in downtown.

Q. Mr. Bradley I believe stated that they pump now to the lower districts I think, from one of their uptown districts, from 14th or 21st Streets, to Canal Street, didn't he?

Mr. MATHEWSON: I think to Bowling Green.

Mr. PAGE: It supplies the lower part of town.

Mr. MATHEWSON: It goes to Bowling Green.

A. The capital investment for a thousand feet of gas, to deliver gas in that manner, if carried at 15 pounds pressure would be some-

thing like—well, I have not the figure here, but it would be less than one-fifth.

Q. One-fifth of what?

4832 A. One-fifth of the cost of delivering it under the ordinary pressure now used.

Q. Are such systems of delivery under high pressure as you have described and then distributing it to mains to which services are attached at a much lower pressure, in use?

A. Yes, sir, there are quite a number of such cases. They are pumping gas now, in a great many localities; in fact, I have not been able to keep track of them, but there is a large number in the journals and other sources of information are daily showing an increase in that direction; several papers have been written and read before association meetings in that regard.

Q. And it is a well known system of distribution?

A. Perfectly.

Q. And as you have indicated, could be applied to New York conditions?

A. In fact, it has got to be applied here. There is no more avoiding it than there is avoiding—it has got to be done in order to keep up with the increase of consumption in New York. It is the only available means of doing it.

Q. Have you made an examination of the station record book at 21st Street station, which is Complainant's Exhibit 243?

A. Yes, sir.

Q. And a similar book at 44th Street station, which is Complainant's Exhibit 244, and of the 99th Street station, which is Complainant's Exhibit 245?

A. Yes, sir.

Q. Now, in regard to Exhibit 243 of the 21st Street station, have you made extracts from that?

A. Yes, sir, I have a recapitulation here of their monthly results during the year 1905, showing the amount of gas made and corrections for temperature, total gas sent out to consumers, oil gas to 14th Street, 18th Street, 42d Street, maximum output and minimum, fuel used in generators and in the boilers, oil used per thousand in gallons, oil used, candle power at the station corrected for temperature, candle per gallon of oil used, gravity (Beaume) of oil,

4833 amount of oil and all the other data of importance; drip oil. It is comprehended in these two sheets.

Q. Never mind giving all that. I do not care for all those things. It is part of Exhibit E of City's Exhibit 87?

A. Yes.

Q. Now, Mr. Edgerton, have you prepared in convenient form and from this exhibit a comparison of candle powers, yield and quality of the water gas?

A. Yes.

Q. And upon that stated the City Inspector's tests for candle power for the same period?

A. Yes.

Q. You may state how the City Inspector's candle power was arrived at.

A. I took the City Inspector's candle power from the records at Mr. Lacombe's office, the City Inspector——

Q. The City Inspector makes tests, however——

A. They are made once a week.

Q. Up to July 1st?

A. Up to July 1st, and from that on they were made daily except occasionally on Sundays——

Q. Then up to the month of January as stated you arrived at that by taking the average of the tests for that month?

A. Yes. In regard to candle power, I have both the candle power at the station and the candle power by the City Inspectors, also the average gravity of the oil in gallons of oil used per thousand cubic feet.

Q. Taking the candle power at the works, did you take the corrected candle power as stated on Exhibits 243, 244 and 245?

A. Yes.

Mr. PAGE: I will offer this in evidence.

Mr. MATHEWSON: I have no more objection to this than I had to the original exhibit. I make the same objection.

The MASTER: Same ruling.

Mr. MATHEWSON: Exception.

Paper marked State's Exhibit HHHH.

4834 Q. From this exhibit, as a person having experience of the manufacture of gas, what do you find with respect to the heavier and lighter oils?

A. While there are some anomalous results reported here, I find that there is no great difference in results. Take the month of April——

Q. What do you mean by that?

A. In results from the oil. Taking April, for instance, there was an average gravity of 33.80.

Mr. MATHEWSON: At the 21st Street station?

The WITNESS: At the 21st Street station. I may explain about getting the average gravities——

Q. No, go on with your statement.

A. 33.80. The oil used was 4.47.

Q. Gallons per thousand of gas made?

A. Yes. Candle power corrected at the station 25.07. Taking an extereme difference, the average gravity of oil in July of 28.38, the gallons of oil, 4.83, the candle power is 27.72.

Q. That is the heavier oil, 28.38, produced more gallons of oil per thousand——

A. More candle power.

Q. With a slight increase?

A. There is a slight increase in the gallons of oil per thousand, but taking the month of October, for instance, 29.70, with 4.66 gallons, the candle power still keeps up to 26.38. The most instructive com-

parison, perhaps, is shown between April and May. April has practically the 34 degree oil; the gallons are 4.47——

Mr. MATHEWSON: That is a mistake. I don't know whether there are any others, but that is 4.49, according to the exhibit attached to the report.

Mr. PAGE: For April?

Mr. MATHEWSON: Yes, 4.49 and not 4.47.

The WITNESS: Well, that is all the better.

4835 Mr. MATHEWSON: That may be, but I am simply calling attention to the fact that the present exhibit is not in that regard accurate.

Mr. PAGE: Then correct it.

The WITNESS: Well, correcting it to 4.49 the candle power corrected at the station was 25.07 and in May, using 29.53 oil and 4.51 gallons, the candle power is 25.50.

Q. I call your attention to the month of June?

A. The month of June——

Q. Where the same average gravity oil was used as in May?

A. Yes, and in gallons per thousand 4.45 and candle power 26.85.

Q. And the loss in the city test in both of those, in one it is 3.38 candle power and the other 3.67?

A. Yes, but the most significant loss is on the month of May, where there is a loss of 5.09.

Q. What deduction do you make for these facts, Mr. Edgerton?

A. I can fairly say that that coincides entirely with my own experience in regard to the use of oil, that I would not give any preference to that lighter oil; in fact, the heavier oil contains a larger body of carbon and would stand more water gas.

Q. Does it show from their actual operations that practically the same result and the same variations are produced from each oil?

Mr. MATHEWSON: If they do, it seems to me the exhibit itself does show it. If it does not, it does not. I object to that as a conclusion which it is not fair for the witness to draw.

The MASTER: Well, you can ask him if that is his conclusion from the figures shown on that exhibit and to state his own opinion on it as an expert.

Mr. PAGE: Yes.

4836 Mr. MATHEWSON: I object to that also.

The MASTER: That I will allow him to do.

Mr. MATHEWSON: Exception.

A. Yes. There is essentially no difference.

Q. If you have anything else you want to point out on this——

A. 21st Street station is not the only one showing that. Taking the 44th Street station in the month of April the average oil was 34.48, gallons per thousand used 4.38, candle power 23.48. In May with practically 30 degree oil, 30.08, and using 4.40 gallons, gives a higher candle power, 24.14.

Q. Comparing the month of July with the month of November, what do you find?

A. The month of July, the oil averaged 29.01 and the candle power 28.06, but in the month a larger amount of oil was used.

The most anomalous results were shown in November and December, in my judgment, where the lighter oil is shown to manufacture gas tested by the City Inspectors of higher candle power than it is tested at the works.

Q. That is in the month of December?

A. That is in the month of December.

Q. The month of November shows a very slight variation?

A. The month of November a very slight variation, and I do not think anybody ever found such a case before. It is the uniform result throughout the country, no matter whether you use naphtha or the lightest oil, that you have always got to use more candle power in the winter and that there is a loss from condensation of illuminating power in the holder and to some slight extent in the mains, and here we have the anomaly that this oil raises the candle power higher in the mains than at the stations. I think that would require very considerable explanation. In fact the conditions
4837 here are reversed; candle power loses in the summer time and stays steady in the winter. It is remarkable.

Q. What is there in the heavier oil that in your experience has made it as good if not preferable to use than the lighter oil?

A. In various forms of apparatus the heavier oil has got more carbon and will stand more water gas and will give a higher result in candle power, than the lighter; although it gives a less number of cubic feet per gallon, it can be diluted more largely with the blue water gas than the lighter oil.

Q. What is there in the oil that gives it its illuminating value?

A. The carbon.

Q. And you find in the heavier oils more carbon?

A. They are more rich in carbon except when used in the Welsbach burner, and in that case it is the intensity of heat of combustion.

Q. Yes, the quality of the flame has nothing to do with the light from a Welsbach burner, has it?

A. No.

Q. That is the reflection from the incandescent of the mantle largely?

A. That is true, however, it is always the same increase or ratio of light with the Welsbach burner as it is with the common burner. I have tested gases varying all the way from 11 candles up to 40 candles with the common burner, and the same variation will be noted, if the Welsbach is properly adjusted, on the Welsbach burner.

Q. Referring to the same exhibit, what do you find with regard to the production of tar, the percentage of tar?

A. Following the use of 20,058,206 gallons of oil during the year——

Q. At what station?

A. At the 21st Street station, the residual oil or tar is 4,183,891 gallons or 20.81 per cent.

4838 Q. What did you find at 44th Street?

A. I found at 44th Street 24.7 per cent. and at 99th Street 25.8 per cent.

Q. How does that result of the percentage of tar correspond with your experience and with your observation of other plants?

A. I think that is an excessive amount of tar.

Q. Upon what do you base that?

A. Upon my own experience I have had the tar separated from water very carefully and at Danbury our tar amounts to five per cent. on the amount of oil used, tar drip.

Q. How is it at Lowell, if you have made any study of that?

A. At Lowell it is stated in the Massachusetts report as 3.70; at Fall River 12.1 per cent.; that was from the Massachusetts report of —I think it was the 20th Massachusetts report. I am not so certain about the Massachusetts figures, however, as I am about the Danbury results.

Q. From your experience, is from 5 to 10 per cent. about normal?

A. I think 5 to 10 per cent. would cover all the loss from different apparatus, although I noted that the loss is still greater as made by the Consolidated Company in its retort process, amounting in some cases to about 33 per cent., one-third.

Q. What is there in the production of carburetted water gas that would lead to the excessive percentage of tar?

A. Well, in the operation of alternating machines, in which the Lowe process of type——

Q. Was that the process that was used in these various stations of the Consolidated Gas Company?

A. Yes, sir, that is, it is used in the stations except in the retort stations that I saw.

Q. I mean, of course, these three stations in which you have used the comparison. I do not mean the coal gas stations?

A. Yes, sir. I have not visited the stations, but I had re-
4839 liable information that that is the machine they use.

Q. Now answer the question.

A. I am perfectly well acquainted with the machine and have seen it in many localities. The operation is to blow up the heat in a generator containing coal and by the addition——

Q. I know, but what is there in that operation that produces the excessive tar?

A. Well, it is the variation in the heat, when the oil is first turned into the machine there is a higher heat, no matter how it is managed, and there is a tendency to make a little carbon.

Q. From what element does the tar come?

—. It comes from the oil. It is a product—it shows the non-decomposition of all the oil in the gas. The machines from time to time are known to kick, as it is called, that is, the passages get clogged up and work into channels and gases escape decomposition in that way and they frequently have to be cleaned out, and towards the end of their time of proper duty they refuse to decompose the oil into gas.

Q. Then does a large amount of tar show an inefficient operation of the plant?

A. Yes.

Mr. MATHEWSON: Well, whether it does or not depends on the

accuracy of the facts which he has testified, it seems to me, and a conclusion that somebody else can draw.

The MASTER: I think he might be properly asked if in his opinion it would necessarily show an inefficiency. I think I will take that.

Q. In your opinion does a large percentage of tar as is shown from the operation of these plants necessarily follow from an inefficient operation either of the plant itself or from the management of it?

4840 A. Assuming the statements in the paper to be correct, it shows a very poor average operation, I should call it.

Q. And in a large production of tar there is a waste of the oil, is there not?

A. Always considered a waste. only to the extent that you can use it afterwards. Now we have methods for separating and using some of it.

Q. Yes, I know, but do you get as valuable a result from distilling tar in your gas generators and selling the tar as you would in applying the same amount of oil to making gas?

A. Not by any means.

Q. Then it represents a distinct loss in operation, does it?

A. It is not a valuable tar for sale, that coal tar is sold at a very low price.

Q. (Question repeated).

A. Yes.

Cross-examination by Mr. MATHEWSON:

Q. The use of high pressure pipes to overcome the variation in pressure would not overcome the variation due to altitude, would it?

A. Partially, that is, it would overcome it entirely if you would separate it off in sections, that is put valves in and then feed from your high pressure mains into the mains along at the different levels, which could be readily done.

Q. You never figured out how many sections it would require in the City of New York, considering the different points of elevation here?

A. I would only think it necessary to put in comparatively few from what I have seen. The variation from Columbia College down to 125th Street is a tolerable variation, I don't think it shows over one-third to one-half of an inch.

Q. That is not the only elevation in the City of New York that requires special treatment, is it?

4841 A. No, I saw a greater elevation on Washington Heights, down to 125th Street.

Q. And there is a deep cut running through Washington Heights, below Kingsbridge, separating the high altitude of Fort George from the high altitude of Fort Washington, on the other side of the island?

A. I am not acquainted with that particular locality, I don't remember it. However, I should not think it was necessary to treat separately over a variation less than, say, 100 feet.

Q. Would not the pressure at every point where the high pressure mains were attached to the distributing mains have to be kept down to a pressure not exceeding two and one-half inches?

A. Yes, sir.

Q. The effect would be simply to increase the point at which an initial pressure of two and one-half inches in the distributing mains was established?

A. That is just it, that is what would be the difference.

Q. Now, you speak about a pressure of 20 pounds in pressure mains. Do you mean 20 pounds to the square inch?

A. Yes.

Q. What would be the effect of that pressure on the distributing mains to consumers' meters if a governor broke down or the pressure was let into the distributing mains?

A. Well, there would be, by properly locating the governor, there would not be much effect. You have the outlet to the holder, it would blow the holder up in the nearest locality and raise the holder—no, I doubt whether that would be a proper safeguard, because the holders here are weighed to such an extent, they would require to be counterbalanced in order to make that workable. That is not impossible, however; I have seen it done on holders. You would have to have free access to the holder, but I have seen the pressure let loose in a large main from a governor without in-
4842 creasing it very greatly. They could take the precaution also of having a small opening in the governor, so that in any possible arrangement of the governor there would be only a certain amount of gas go through anyhow. There could not be any excessive amount of gas. Also a governor can be made, and is made, which any breakdown will shut off at that point.

Q. A midnight consumption and a maximum hour's consumption is very difficult. How could you arrange that?

A. How could I arrange that?

Q. Yes.

A. You are not obliged to pump as soon as your output is well within hand, but you could proceed without the use of the pressure main; a pressure main is only intended for the maximum demand.

Q. Is it not well known in the gas system that you have to bank up pressure so-called against the hours of heavy consumption in order to keep up with your consumption, and is it not true that if a consumption once gets away from you, you can hardly catch up with it?

A. Well, that is just it, bank it up. It banks it up more than an inch and a half, 15 pounds of a pressure is really a power to bank up, for all you want.

Q. And that pressure would be great enough to blow up a holder if it got into it, the holder being weighted as ordinarily, would it not?

A. Well, the only thing——

Q. Well, would it not? Just give me an answer direct for once, Mr. Edgerton.

Mr. PAGE: Do you mean that they would reverse the pump and put it into the holder instead of into the main?

MR. MATHEWSON: No.

4843 A. It would raise the holder in the same manner that the exhauster would raise it. It would be a matter of indifference whether the exhauster at the works was raising the holder or the pressure was raising it.

Q. The holder does not support any such pressure as 20 pounds to the inch?

A. Yes, it would support 200 pounds or any other pressure—that is not the holder itself but the main.

Q. I am talking about the holder. Would it not take the top off the holder?

A. No, sir, not by any means. There could not any such action happen as that if you tried.

Q. What about the effect of this in the distribution mains, with a pressure of 20 pounds, would it not blow the meters out?

A. It would blow the meters out if you had high pressure enough.

Q. Would not that be high enough pressure?

A. Yes, sir, it would if it got into the mains, but——

Q. If it did get into the mains and did blow the meters out it would be a pretty serious situation, would it not, in the houses?

A. It would be, if anything of the kind could happen.

Q. Do you know of any great city where such a system as that is in vogue with a 20 pound pressure?

A. Well, I don't know exactly the pressure they pump to, but I know that they have distribution of both natural gas and artificial gas which they lead into the mains by the use of governors.

Q. I am trying to get at something definite. Do you know of any great city where they operate under a pressure of twenty pounds to the square inch on illuminating gas?

A. I don't think it has been carried up to twenty—Oh, yes, it has been carried higher than twenty pounds on illuminating gas and water gas.

Q. Give us the name of a great city in which such a system is in operation; because it must have been discovered by some engineer, if it is practicable, perhaps.

4844 A. So far as—I have not visited the places, but I know it is in operation in a number of places.

Q. Give us the names of a few of these large cities. I want to get a large city where that is in operation.

A. How big do you want?

Q. Well, give us the largest one you know of.

A. Well, New Orleans feeds it from a pressure main pumping around the city. That had been described in some of the proceedings of some associations, I believe.

Q. What is the pressure per square inch at the opening from this feeding main to the distributing main in New Orleans?

A. I don't know.

Q. Well, you know it is not twenty pounds to the square inch, do you?

A. No, I think it is probably as much, if not more than that.

Q. You don't know?

A. They have a six-inch pipe, and to distribute any amount of gas through a six-inch pipe around the city would require more pressure, I should think, than I have been calculating on.

Q. Well, do you know?

A. No, I do not.

Q. And is it not true that a pressure of even less than twenty pounds to the square inch, if it got into the distributing mains and services would blow out the gas at the burner if it were lighted?

A. Yes, but it could not get in there.

Q. Won't you be good enough to answer my questions and not try to argue with me? I asked you if that pressure got into the distribution mains and services, would it not blow out any gas that was lighted at the burner?

A. If you got twenty pounds certainly.

Q. Well, that is the answer. Now, what other city besides New Orleans that is of any size where you can mention any such system as twenty pounds to the square inch pres-ure in vogue?

4845 A. Well, while I was examining into the natural gas question, they were pumping about 100,000,00 feet into Chicago, and I was informed that they had sixty-odd millions of distribution there through a pressure system reduced in this man-er by a governor.

Q. That is natural gas, is it?

A. Yes. All gases follow exactly the same law in regard to compression and in regard to blowing up meters.

Q. Tell us again about Chicago. I did not quite catch that. What is the arrangement in Chicago according to your information?

A. My information is that they feed into a relatively low pressure main, that is, a main where the pressure is measured in ounces instead of inches of water, the way we do, and they pump a distance of about 130 miles. I have seen on the record something like 168,000,000 a day.

Q. Is it your information that there is a pumping main in direct conjunction with the distributing mains in Chicago with a pressure equal to twenty pounds to the square inch at the point where it enters the distributing main?

A. No, it is nearly 300 pounds.

Q. At the point where it enters the distributing mains?

A. Not at the point of the mains, but where it is reduced.

Q. I am talking about the distributing main which may be reduced twenty-five or thirty miles out of Chicago?

A. Perhaps.

Q. I am talking about the pressure at the point where it enters the distributing mains. Do you mean to say that the pressure you think is twenty pounds to the square inch at the point where it enters the distributing main?

A. Not where it enters, but where it is governed.

Q. Well, at the governor, separating it from the distrib-

4846 uting main?

A. Yes, more than twenty pounds.

Q. Where is that governor?
A. I don't remember the location of the governor.
Q. Have you ever seen it?
A. Not that I know of.
Q. Is that illuminating gas or is that gas used for fuel?
A. It is used for fuel and runs through the low pressure pipes.
Q. Is it illuminating gas?
A. No.
Q. Do you know whether these cities of that character, that is which had natural gas, have cast iron meters instead of ordinary meters?
A. They have a high pressure meter because they use pressure by the ounces, whereas you use pressure in the ordinary distributing mains by inches.
Q. They have iron meters?
A. Yes.
Q. Now, you say that you would put one main up each side of the City of New York. Up what avenue would you run it?
A. I would run it along the water front as near the gas holder as it conveniently could be.
Q. Well, which ones? You are familiar with conditions here apparently?
A. I have not picked out the precise avenue and location for these mains. That is a subject I have not entered into. I know they will have space enough to do it.
Q. You think it would be a good thing to run it up along West Street, where the main would be generally on the level with the water, and on made ground?
A. I would not use such a locality now.
Q. If you come up on that route, do you think there is room enough in Broadway to run another large main on that street?
A. I would not propose to run it up Broadway or the central district at all.
Q. I thought you said you would run through the congested districts. Now, I want to know what avenue?
4847 A. I mean parallel with the congested districts so as to feed up as nearly into the cross-town mains as possible.
Q. You have not g[illegible] so far as to determine which avenue you would run this on?
A. No, sir.
Q. And you have not examined these avenues, to ascertain whether there is room to put high pressure mains of large diameter up those avenues, have you?
A. While looking around on the mains question I saw room enough to put more than 24-inch main in various localities. I didn't note any great congestion of mains.
Q. In the City of New York you did not notice any great congestion of mains?
A. Nothing that I considered insuperable to laying another pipe.
Q. You do not think the mains in New York are very much congested then, in the streets?

A. Not so much as they are in some of the natural gas districts where they are supplied with natural as well as artificial gas.

Q. What sort of a main would you put in, wrought or cast iron, for your main?

A. Wrought iron.

Q. What did you mean when you said that the capital investment for 1,000 feet, if 15 pounds pressure was used, would be less the cost of delivering it under the pressures now used?

A. I mean that the capacity under an increased pressure would be increased five times by using a little pumping during the congested hours, during the hours of greatest demand.

Q. But when you got in into the distributing mains, if you got the pressure between 2½ and one inch there, you would not distribute any more gas through that, would you, than if you kept the pressure in the distributing mains 2½ to one inch, without any intermediate mains? In other words, the amount of gas that
4848 you would deliver from your distributing mains, assuming the same number of services in operation, and the same number of burners, would be exactly the same, whatever produced the pressure in the distributing mains, wouldn't it?

A. Yes.

Q. In fact, your theory is, you would distribute more gas if the pressure was higher and came direct from the holder to the distributing mains?

A. No, that is not the idea at all. I mean to say that it would not increase the cost of the present main system, but would deliver an extra quality of gas or the increase at one-fifth the capital expense that would be required to go on under the present system, to meet the increased demand.

Q. At one-fifth the capital expense applied where?

A. Applied to new mains. That is, as the demand for gas increases your mains would have to be increased to meet it, and it would be about one-fifth the expense.

Q. You mean for future consumption?

A. For future and present. It would make it more equitable. I do not say it would make it cheaper for the present output, but it would make it more reasonable.

Q. But you would use the mains now in operation and put in other mains. That would mean a larger capital investment, wouldn't it?

A. For the price of main, yes, sir.

Q. Did you figure on wrought iron mains in your reply to which I have just called attention?

A. Yes; that is, the wrought iron mains would be a little less expensive than the cast iron mains and the wrought iron main would be much thinner than the cast iron main.

Q. Have you ever operated a high pressure system of the
4849 kind you suggest in any great city in the East?

A. No, sir.

Q. So that your views are not based on your own experience in that regard in such a city?

A. Not in a large city.

Q. And don't you know that where these high pressure systems are used as a rule they are in small places?

A. Everything of that kind has to begin in small places.

Q. Now, let us take the question of candle power. Refer to State's Exhibit HHH. You understand, don't you, that for the first six months, January to June inclusive, the city inspector made tests but once a week, that is to say, about four tests in each month?

A. Yes.

Q. You understand that, don't you?

A. I understand that.

Q. Now, what about the candle power of the Company corrected that you have stated to be for January, for instance, 25.14, 21st Street station; was that average obtained by taking four candle power readings made by the Company in the month, or by taking 30 candle power readings and averaging the whole 31?

A. I don't remember whether the full number of observations were taken a month, but I suppose thorough observations were taken, as they ought to be, by the inspector.

Mr. MATHEWSON: I move to strike out, "as they ought to be by the inspector."

Motion granted.

Q. Now you said that you made up that portion of the exhibit, Schedule 3 of the accountant's report, for Mr. Hall, didn't you?

A. That is, I supervised the starting out, directed the young man what to do.

Q. Do you mean to tell me that you don't know whether
4850 this 25.14, January, for the 21st Street station, represents the average candle power of thirty-one days or of four days?

A. Well, I know that it does not represent four. Once in a while an observation might be missed. I looked over the candle power columns very carefully but whether an observation had been left out or not I don't remember.

Q. Do you know what hours the Company made the observations which were averaged at 25.14 candles?

A. I do not.

Q. Do you know at what hour the City Inspector made his inspections, four or five of them, which averaged 21.24 for January?

A. No, sir. My directions were to take at the time of the greatest output of gas.

Q. Now, if the days on which the City Inspector happened to make his four or five inspections the candle power of the gas happened to be lower than normal, there would be no fair comparison between a candle power at the Company's works which was taken by the average of every day in the month, and the average of the City Inspector which happened to be taken on those four or five days, would there? Do you think that is a scientific comparison at all?

A. The best I had. I do not approve of making observations once a week.

Q. That is all right, but do you consider that a scientific and fair

comparison where you do not know how many days the City Inspector's 21.24 represents and you do not know the hour of the day when the observations were taken and you don't know whether those tests were fair average days for the month or not?

Mr. PAGE: Objected to as including more elements than he said. I have not asked him anything about the City Inspector.

4851 A. I did not predicate very much on the City Inspector's report on those early days. I do not believe I even referred to them.

Q. Yes, you do. You show the loss in the last column between correct candle power and city's candle power and testify as to the difference in the loss in one case or another as though it might be due to the character of the oil instead of due to the particular days on which the inspector happened to inspect?

A. No, I don't remember, only on April or May I think I ran down toward the daily inspections.

Q. And you did find that in April with an average gravity of oil of 33.80 the loss according to this unscientific method was 3.38 candles between corrected candle power of the company and the City Inspector, didn't you?

A. That is put down here, yes, sir.

Q. Do you know whether the City Inspector corrected for temperature or not?

A. Yes; it so states on his inspection.

Q. Does it state that he corrected for temperature prior to July, 1905?

A. I think they are stated here. Corrected and sworn to.

Q. You found by this method that with the lower gravity oil 29.53 used in May the loss was 5.09 as against 3.38 candles the previous month when a higher grade of oil was used, didn't you?

A. Yes, sir.

Q. You stated that the results were not entirely consistent, did you not?

A. I did.

Q. You would not expect them to be consistent, would you, unless you knew what days the City Inspector examined upon and took the observations of the company on the same days at the same hours at its works?

A. It does not require the same hours exactly. I think the observations ought to be taken when the current of gas is going out for lighting.

4852 Q. At substantially the same time in order to make a comparison and show loss of candle power between the works and testing station?

A. Not exactly the same time.

Q. I asked as to the same time. Oughtn't it be?

A. That is assuming the gas in the holder is a very different quality. I do not think it is necessary to be very particular about that. The nearer they are together the better, but then you have got to allow for the time, and distribution and all that kind of business could not be allowed for. The gas is about an average.

Q. The gas is going into the holder every day?

A. All the time.

Q. And don't you know that you cannot make a comparison which will show loss of candle power between the works or between the holder and the inspecting station with any scientific accuracy without testing at substantially the same time at the works or holder and at the testing station?

A. Well, it would be better to do it in that way.

Q. Don't you know that it frequently occurred in testings prior to the new law that the average of the city inspector who examined only four times a month would be found to be higher than the average of the company which examined every day in the month, due to the fact that the inspector happened to make the test when the average was high, and not the average test, or didn't you know that?

A. I didn't know that, but I didn't put any great weight on those first observations.

Q. Now, let us go down to the 44th Street station. You say that according to this method of comparison which you have taken, there seems to be in November a slight difference of .22 of a candle power between the average of the company at the works and the city inspector. You know the contract for the higher grade
4853 oil went into effect November 1, 1905, don't you? You remember that is the date of the contract?

A. I heard it so stated, yes, sir.

Q. You observe that in November when this small difference occurred, the average gravity of the oil, according to you was 34.25, while in October, a month before, it was 29.95, and the loss in candle power was 2.42?

A. Yes.

Q. And considering the fact, referring to December, at the 44th Street station, that the tests may have been taken at different hours by the company at the works, than the hours of the city inspector's tests, and that there was certain gas in the holder at that time which may have been made the day before, isn't it quite possible that there might have been a difference of .05 of one candle power without much difficulty?

A. I could not understand that. Any difference in the hours could not make any such anomaly as shown there.

Q. And referring to the 99th Street station, do you not observe that November and December there by the corrected candle power of the company and the city inspector's averages differed but very little, .12 of one candle power in one case and .09 in another?

A. Yes, plus. The city inspector showed a higher candle power than the gas at the station.

Q. Did I understand you to say that you have used 28 degree oil in preference to 34 degree oil to make a high candle power gas?

A. Yes, sir. I have used a heavier oil to a certain extent. I do not think there is any doubt but a heavier oil will make a higher candle power gas.

Q. Have you ever operated a low water gas plant in this section?

A. I have not operated a plant. I have been in close connection with them for days and weeks together.

Q. You said that if tar was left that wouldn't be so valuable. There is more carbon in tar, isn't there than in ordinary gas oil?

4854

A. There is more carbon in it, yes.

Q. You said that the illumination depended, didn't you, on the amount of carbon in oil?

A. It does depend on the amount of carbon, but it has got to have sufficient hydrogen to float it.

Q. Then it depends on the hydro-carbon rather than the carbon, to be technically exact?

A. I spoke of carbonization matter as the source of the light, and always has been spoken of as such.

Q. Didn't you speak of the hydro-carbon as the source of the illumination ordinarily in the art?

A. I will say the illuminants, but the carbon itself really is the source of the light, the heating part of the carbon, and it depends on the amount of decomposed hydro-carbon.

Q. But there is no carbon in the oil, is there?

A. Combined.

Q. That is hydro-carbon in the oil?

A. Combined with the hydrogen.

Q. That is the hydro-carbon, isn't it?

A. Certainly. I never heard it stated any other way than carbon. Hydro-carbon is the chemical composition but the carbon is the source of light. I spoke of it as the source of light.

Q. Does the weather have any effect on the illuminating power of the gas and the efficiency of 34 degree oil as compared with 28 degree oil?

Mr. PAGE: Will you divide your question?

Mr. MATHEWSON: Let the witness divide it.

A. Do you mean whether it would stand cold weather any better than—the light oil would stand cold weather any better than the 28? I don't understand it, if that is what you mean?

Q. Yes.

A. I have not seen any practical difference, no.

4855

Q. And you think that no matter how cold the weather is that the 28 degree oil is just as efficient in producing a fixed gas to maintain its candle power under those conditions of temperature as a 34 degree oil, do you?

A. I think, if properly decomposed into fixed gas it would be just as well.

Q. With low apparatus?

A. With low or any other apparatus.

Q. Well, do you mean with low apparatus?

A. Yes.

Q. You consider then that the oil is better for gas making purposes simply because it contains a greater proportion of carbon, do you?

A. Combined carbon. That is, it has the hydrogen to carry it into

a gaseous state. Understand the distinction I make between the carbon and hydro-carbon is simply that the light is due to the carbon entirely and not to the hydrogen. The heating part of the carbon particles when the gas is decomposed by heat.

Q. You know, do you not, that the Consolidated employs certain of its tar deposits for fuel in lieu of coal?

A. Yes, they all do that. I think at Danbury we were the first to separate tar so as to use it successfully in the boiler.

Q. Do you mean to say at Danbury there was only about 10 per cent. of tar drip?

A. Less than that.

Q. What became of that? Did you use that?

A. We used that for firing the boilers.

Q. Didn't you have your tar run into the river at Danbury?

A. It did at one time. We had a small portion, simply a portion that was carried off owing to the fact that cold water and the tar is hard to separate, but by heating it up with a provision they have now the tar and water separate so that now it runs off.

4856 Q. Wasn't Captain McKay called in an consulting engineer on the elimination of the trouble from the tar running into the river, and installing a system of purification and so forth in Danbury?

A. I never heard of his advising to tar at all. It has been talked over for a number of years by myself and the superintendent, but there was so small an amount manufactured that when a lawsuit came up compelling them to act they acted.

Q. Captain McKay was called in, wasn't he?

A. I don't remember that he was. I wasn't there.

Q. You met him in Danbury, didn't you?

A. I met him in Danbury in regard to this price matter, yes.

Q. And soon after that the trouble from tar running into the river was eliminated?

A. Oh, that was years ago.

Q. Hasn't he been consulting there for five years or more?

A. Not that I know of. I know that Mr. Merritt would consult with Mr. Addicks or anybody else he can talk to on the question of gas.

Q. Did you ever meet Captain McKay more than once?

A. I never met him but once.

Q. Did you ever discuss any engineering matters in reference to Danbury with him, or he with you?

A. I remember one time he was around there trying to "raise hell" about the price.

Q. You didn't know he was employed by the company to "raise hell," if you put it that way, did you, instead of their relying upon your advice?

A. The exact information in regard to the matter is this, that for a long series of years since 1892, the superintendent of Danbury and myself have been arguing and urging a decreased price to the small consumer. There was a large difference in the price of

gas for large and small consumers and it had got to be out of proportion.

4857 Q. I am asking about Captain McKay and the tar running into the river, and his position as consulting engineer and in conferring with you. I do not care about anything else.

Mr. PAGE: I think your question was broader than that. You asked if this man had been called in as consulting engineer generally for some time past.

Mr. MATHEWSON: Well, let him answer that but we do not want a treatise on the subject.

A. It is a very short story, if you will let me tell it.

Q. I asked if he has not been called in as consulting engineer on one case or another for the past five years and been paid for it?

A. I never heard of him being called in until he came down and advocated a reduction of price and then turned up a few days afterwards, and said it would be better to reduce the quality at the meter. That is his way of reducing cost to the consumer.

Q. That is your answer, is it, to the proposition that you were not consulted by Captain McKay in reference to these engineering matters regarding which he was brought in?

A. I never consulted with him; never knew, in fact, he had been consulted. I know that the plan of purifying the gas with iron as adopted in Danbury was exactly after my plan.

Q. Are you a part owner of the Danbury company?

A. No, I haven't a cent of stock in the Danbury company.

Q. Don't you know that Captain McKay has been employed and has been paid repeatedly within the last five years to advise them as an engineer with reference to the plant?

4858 A. If it has been done, the superintendent didn't know anything about it, nor anyone but the president, and I don't think any director knew about it. I know this, that Mr. Merritt, the president, talks gas with Mr. Higgins or with you or Mr. Addicks. Anybody that turns up, he confers with on gas matters.

Q. Are you in receipt of compensation from the Danbury Company now as consulting engineer?

A. No, sir; I never did. What I put in there, except to produce a gas plant, I gave them and give them a proper steer and now they have got it so that I reckon that it will turn out as it did in New Orleans.

Redirect examination by Mr. PAGE:

Q. Mr. Mathewson asked you if the pressure of 20 lbs. in the main would not blow up the gas holder. Was it your idea——

Mr. MATHEWSON: I didn't ask him any such question, Senator.

Q. Was it your idea that the gas would be pumped away from a holder or toward the holder?

A. Pumped away from the holder.

Q. Then to get into the holder, it would have to go back through the pump, wouldn't it?

A. It might go back into some of the other holders, but it would be a relief to the gas if the pressure on the holder was not too great

or if the governor or holder did not interpose. However, there are half a dozen mechanical devices, that could provide for an outlet from the excessive pressure of the gas, back into the holder by passing the governor. We have that appliance in nearly all our exhausters, with the exhauster pumps, to pass without producing too great a pressure on the holder side; we have a by-passage that
4859 lets it go around and back again. The same mechanical appliance could be used in this case. I do not think it would ever be necessary, but if any one was nervous enough to choose to employ it they could do so.

Q. And he says if this tremendous pressure gets into the services and meters, that it would blow them up. Now are there mechanical devices for taking care of that.

A. Yes, sir. There are thousands and thousands of customers using gas under pressure where they have individual pressure reducers. I did not approve of them at the outset, but they have been used safely for such a period of time that——

Q. And this high pressure service is used very largely to transmit gas to suburban districts, is it not, in the City of Chicago now?

A. Yes, sir. It has been used by the Pintsch system, and by various systems. I employed it at Asheville to pump gas from the works to the holder in the city about three miles, through a two-inch pipe. The whole supply depends on that.

Q. Now, these high pressure mains would not connect directly with the services?

A. Not at all. They are distinct from the services and even from the mains. They are absolutely a valve, a valve in between the high pressure main and the large mains into which to deliver, an absolute valve there that stops off the pressure and it is only opened when the pressure goes down in the large main.

Q. I understand there are governors so made that if any accident happens it shuts the valve and closes the——

A. Yes, the governor is made so that upon any accident that could possibly happen the governor drops and shuts off the gas supply at that point.

Q. Then these various difficulties that Mr. Mathewson suggested had been foreseen and been provided for by mechanical devices, had they?

A. Yes, sir.

Q. In these very systems?

A. Yes, and operated for years.

4860 Q. Now have you not in this paper, State's Exhibit HHH, set down the observation of one day as against the observation of another day. Have you? You have taken the average of the month?

A. It is the average of the month and the average of the year and therefore it cuts up all variations to the extent of the number of observations.

By Mr. MATHEWSON:

Q. Did I understand that if you divided the City into districts you would supply gas to some districts only from a high pressure main or a supply main?

A. I would supply through the high pressure system, pumping as long as there was congestion, as long as there was a demand for gas or fall of pressure, but as soon as that was relieved and the gas flowed slowly there would not be any need of any pumping.

Q. Yes, I understand, but you would send the supply there to that district through one of the high pressure mains?

A. No, not necessarily at all. The low pressure main could carry it. It would not involve the disuse of the present low pressure mains there. It would be just simply having an independent supply to the districts where there was a large demand.

Q. Didn't I understand that the low pressure mains would be shut off from each other in these districts. They would have to be, wouldn't they?

A. Only on districts where there was a large difference in the elevation, and even in that case the district governor at that point could take care of it during the low pressure time.

At 4.45 P. M. adjourned to Monday, December 10, 1906, at 10.30 A. M.

Last Exhibits:

Complainant's, 257.
State's, HHH.
City's, 122.

4861 Circuit Court of the United States, Southern District of New York.

CONSOLIDATED GAS COMPANY OF NEW YORK, Complainant,

vs.

JULIUS M. MAYER, as Attorney General of the State of New York; WILLIAM TRAVERS JEROME, as District Attorney of New York County; FREDERICK E. GUNNISON, JOHN C. DAVIES, and LUCIAN L. SHEDDEN, Constituting the New York State Commission of Gas and Electricity, and THE CITY OF NEW YORK, Defendants.

Before Arthur H. Masten, Special Master.

NEW YORK, *December* 10, 1906.

Met pursuant to adjournment.

Present: The Master, Mr. Mathewson, Mr. Burr, Mr. Page, Mr. Kirby.

4862 Mr. BURR: I noticed, Mr. Master, that on page 4269 the full number of pages to which I referred in the case of The People of the State of New York *ex rel.* Consolidated Gas Company, respondent, against the State Board of Tax Commissioners, appellant, as the same appears in the cases in the Court of Appeals, Special Franchise Tax Cases, Volume XXI-XXVII, July, 1902-July, 1903, in the *Law Institute*, it stops short at page 49 and does not include the pages as marked 55, 56 and 57, which I asked to be added:

"A. The appraisement referred to consisted of elaborate statements made by experts as to each constituent company, of the tangible property of each company, in great detail, giving the value as to each, of every main, meter, service, all plant, machinery, furniture, offices and whatever tangible property there may have been; these all together aggregated $27,649,060, as before stated; they contained no references to or appraisement of the franchises, or business or contracts, or good-will of the constituent companies; there were also valuable patents, which were not mentioned or valued in the appraisement; the Consolidated Company, in 1884, issued $35,430,060 of its stock to purchase all of said tangible property, and all of the franchises, business, contracts, patents and good-will of the constituent companies; the difference between the above amounts, namely, $7,781,000 was considered to represent, at that time, the franchises, and business, and contracts, and patents, and good-will—everything, in fact, except the tangible property; the word "franchises" was used (but not in the inventories as a general word
4863 to cover the whole, for which the $7,781,000 of new stock was issued, and not as representing any particular franchises as the word is being used to-day.

"Q. Please state by whom this appraisement was made, and, if you know, the purpose in stating the value of the franchise?

"Objected to as incompetent, immaterial and irrelevant. Objection overruled; exception.

"A. There was no appraisement of franchises, as I have already stated; the appraisement of the tangible property was made by several different experts in that line—builders of gas works, machinery, etc.; I cannot remember who all of the persons were; one of them was an officer of the Continental Iron Works.

"Q. Is any mention made in that document of the good-will of the companies, or of the right to exist as a corporation, or of contracts with the City, or of the right to make and sell gas?

"Objected to as incompetent, immaterial and irrelevant. Objection overruled; exception.

"A. No; because no appraisement of those matters was made—the appraisement was made only of the tangible property."

Mr. MATHEWSON: In going over the testimony of last Saturday hastily, I observe on page 4846 one question which reads: "I am talking about the control of the output when it goes to the consumer." The question should be: "I am talking about the control of the output so far as it concerns the consumer," instead of "when it goes to the consumer." I would like to have that corrected.

4864 HENRY H. EDGERTON resumed.

The WITNESS: I stated the selling price of coke at Butte at $9 by the gas company. That was coke bought, Connellsville coke, for water gas trials, and their own gas coke they sold at $7.35, which is about $2.35 a ton more than the best coal in Butte at that time. I also want to correct a statement in regard to the meter at 14th Street

station being made by Gratz. It should be at the 42d Street station. I found in looking over my 42d Street inventory that the Gratz meter was located there.

Q. On page 4746, Mr. Edgerton, you said: "I saide the price of it at Butte from $6 to $7.35."

A. That involved selling it in measure instead of weighing——

Q. Well, that is all right; we have that correction made now. Of course you will have an opportunity to read over your testimony and make any typographical corrections and so forth. Now, Mr. Edgerton, you were asked by Mr. Mathewson whether you could give the elements of cost price of gas at 24 cents in the holder. Have you made that computation?

A. Yes, sir.

Q. Will you state it?

A. It amounts, in adding up the details, to 23.26 cents, in case of making a certain percentage of coal gas and water gas.

Q. What is the percentage of coal gas and water gas?

A. That would be leaving out nearly all of the water gas. I have not calculated the percentages, but it seems practically an enriched coal gas. And there is another calculation based on the Central Union results, which I brought to 22.92 cents.

Q. Now you state the first computation is of an enriched coal gas. You may state exactly what you mean by that.

A. The basis of the gas, that is, it is almost entirely com-
4865 posed of 14 candle power coal gas, and to that we add oil gas enough to restore the candle power to above 22 candles and enough water gas to carry the oil vapor through the super-heater. I heard it proposed on very good authority by an eminent engineer that the oil gas could be made in the Lowe machine without any water gas to carry it through, by simply flooding the machine with oil when it was hot and using an excessive amount of oil to make up for leaving out the water gas, but I have my doubts about such an operation, and I have added a percentage of water gas in order to carry it through.

Q. You may give the details of that computation of 23.26 cents.

A. That involves bituminous coal at $3.20 a ton and a yield of 10,600 cubic feet to the short ton of 2,000 pounds. The other elements are the marketing of the coke at $4 per ton and——

Q. Give your amounts there as you have them. Do not skip around.

A. I did not think you wanted all the details.

Q. Yes, give us the details.

A. The cost of coal unloading, charging, drawing and yarding and quenching and labor of gas making and purifying I have at 36.12 cents. Superintendence at ½ cent. Coke and breeze made, 66 per cent. of the total weight of coal, or 1,320 pounds per ton of coal used. I used for fuel for the manufacture of the gas 20 per cent. of the coke made. The return from residuals I put at: Coke, 19.8 cents per thousand cubic feet; tar, 12 gallons at 5.65 cents; ammonia return, 4.7 cents, being altogether 30.16 for residuals per thousand. I see the Central Union has 29.06 cents. This gas will be about 14-

candle power. Enriched with oil gas to 22-candle power, taking oil at 4.23, generator coal at 20 pounds per thousand, labor of making oil and water gas three cents per thousand. Repairs to appa-
4866 ratus, buildings, 4.5; purifying material, lime, .75 cents; oxide, .25 cents; oil and waste, .37 cents; water, .17; general expense at works, half a cent; repairs to oil gas apparatus, 2 cents per thousand, half a cent, making 23.26.

Q. On the basis of 10,000,000,000 cubic feet of yield, what would you say of half a cent allowance for superintendence?

A. Well, while I was making these figures I did not take the enormous output into consideration. I was figuring more on the smaller output which they have at the Central Union. That figure for superintendence would be rather excessive on the total output; it would be something like $50,000, I think, on the total output of the Consolidated.

Q. And 4½ cents for repairs on the same basis would be somewhat in excess of the experience of the Consolidated Gas Company, even?

A. I think it would, although in running new machinery and gaiting it up, and getting everything in order, it would possibly run up to that while it was in a [illegible] of experimental—not exactly an experimental stage, but gaiting and getting in first-class running order. I state this because I recommended the use of sloping retorts and inclined retorts at Lynn, and for the first year there was some disappointment about the results, but after getting everything in shape and getting the men accustomed to the handling it turned out very nicely.

Q. After you get your apparatus gaited, an allowance of that much would be somewhat excessive, would it not?

A. Yes, the repair of apparatus and buildings; it would be more even than the old-fashioned coal gas methods, but would amount in the——

Q. So that you have a margin in those two figures, do you, in superintendence and of repairs, quite a large margin?

4867 A. It seems so on the output of the Consolidated.

Q. That is for a plant which would produce 10,000,000,000 feet?

A. Yes, on the output of 10,000,000,000 feet, it would be $450,000 a year for repairs at works?

Q. And what was the experience of the Consolidated?

A. I think their repairs on their present works come to about $297,000 at the works, on the repairs of buildings and labor and material.

Mr. MATHEWSON: Where does he get that $297,000? Is that from any of these exhibits or accounts?

The WITNESS: I got it from the account made up by the gas company that you were looking for the other day to verify.

Mr. MATHEWSON: Do you mean the statement of operations for the year 1905?

The WITNESS: Yes, sir. I simply added up the station repairs.

Q. Of the different stations as shown on——

A. On pages 13, 14, 15, 16 and 17, the five stations.

Mr. PAGE: State's Exhibit ZZ, for identification.

Q. You may state why you took coke at $4.00 a ton?

A. I have found that coke is not a bad generator fuel. My first experience in that direction was to provide the New Orleans Water Gas Plant with coke. Then I sent Alabama coke to Danbury and had put it through a test, and I have found there that although it was more bulky than the coal, that it gave very excellent results; and, furthermore, I found that coke had been used throughout the West for generation of the water gas or blue gas portion of the product, and also in Massachusetts; in fact, wherever they had an excess of coke. Lynn got along with 32.8 pounds generative fuel; Cambridge, 31.8; Worcester, making due allowance for the portion used of hard coal, 35. All those figures compare very favorably, pound for pound, with the use of anthracite.

4868

By Mr. MATHEWSON:

Q. Do you get those figures that you are now giving from the Massachusetts report to the Gas Commission?

A. Yes, sir.

Q. On what year?

A. This is the twenty-first Annual Report.

Q. The last printed report?

A. I think it is the last one. It might have been from the twentieth Annual Report.

By Mr. PAGE:

Q. Proceed. You say it compares favorably. Have you got any figures of plants that have used anthracite?

A. Yes. We have right in the same tabulation: Fall River shows the best results at 32.2 anthracite, and the next is based at 34.6 anthracite. Of course, the smaller plants used more. These, using coke or coal, I quoted the best results from the use of both fuels used in large plants.

Q. What deduction do you make from that?

A. I make the deduction that until the market could be worked up for coke among the multitude of small consumers that coke could be used to a very considerable extent in making water gas.

Q. And that would be a saving to the company on what?

A. On the present selling price of coke of nearly a dollar a ton.

Q. What about their anthracite?

A. And it would save on anthracite 23 cents a ton, for the anthracite is put in the account, I believe, at $4.23 a ton.

4869

Q. Therefore, from the use of this coke in the generating apparatus they would save the $4.23 on anthracite, and for that reason you have given us a value of $4.00; is that as I understand your testimony?

A. Yes; I found $4.00 would be saved, seeing it displaces anthracite, pound for pound. The use of coke in the generator is detrimental in some respects, and in some respects advantageous. It is a lighter fuel, and therefore it is more bulky, but, on the other hand, the porosity of the coke aids to a certain extent in decomposing the

steam. The only precaution necessary being it shan't be overcharged with duty; that is, that it should be run at a slightly lower rate.

Q. Now, you may proceed to the other computation you made, and describe what it is, and your method of arriving at the price.

A. The computation based on the Central Union results is the make, one-half of water gas of 28 candles and one-half of 16 candle coal gas, in this case.

Q. Enriching the coal gas with the 28 candle water gas?

A. Yes, sir.

Q. Well, proceed.

A. In detail?

Q. Yes; we want to get it on the record.

A. Water gas 5½ gallons of oil at 4.23 cents, 23.2 cents; coke or coal at $4.20 per ton, 2½ cents; labor of gas making and coal handling, 3 cents; labor of purifying material, lime, .75 cents; oxide, .25; repairs to apparatus and buildings 2 cents; the water gas part that means; general expense at the works, .7 of a cent; superintendence, 5. The coal gas net as before——

4870 By Mr. MATHEWSON:

Q. Is this the water gas?

A. Yes, that amounts to 31.7 cents. The coal gas net as before, 6½ cents.

Repairs to apparatus and buildings, coal gas——

Q. I do not think I understand you.

A. That is on the coal gas after deducting residuals, 6½ cents.

Repairs to apparatus and buildings, 4½ cents.

Purifying materials, lime and oxide together, 1 cent.

Oil and waste, .37.

Water, .17.

General Expense at the works, .5.

Making, 12.94.

That is the coal gas. And the cost of the combined gas, 22.32, to which I add the difference in oil between 4 cents and 4.23 cents, which is .6 of a cent, making altogether 22.92. You see, I took this figure of oil from the Central Union price, which was 4.04, but I see I have made the correction above in the price of oil. In fact, corrected it twice.

By Mr. PAGE:

Q. So this last .6 of a cent should be deducted?

A. Should be deducted.

Q. Making the cost what?

A. 22.32 cents.

Q. I notice you have carried the same price of superintendence and repairs to coal apparatus as you did in the former. Would your answer be the same, that is, as to a plant producing the 10,000,000 capacity, that that would be excessive?

A. Yes, concentrated as the works would naturally be to combine the operations, I think that allowance for superintendence would be excessive.

Q. And as to repairs?

A. Repairs also probably would be less.

Q. Well, it would be less to the same extent that it was in your other computation?

4871 A. Certainly. I think I have made a rather excessive allowance there for repairs.

Q. I noticed that you used both lime and oxide purification. Why is that?

A. The oxide purification takes out only the sulphureted hydrogen, and the lime will take out the carbonic acid as well as the sulphureted hydrogen, thereby adding to the illuminating power of the gas nearly one candle for every per cent. of carbonic acid taken out. I allow for this for the reason that I think ultimately that this plan of operation will be carried out.

Q. I understand that each per cent. of carbonic acid in gas reduces the luminosity by one candle?

A. Yes, sir, that is my result. I have seen results from other experiments making slight difference, slightly less than that; but my tests show that with this per cent. of carbonic acid in the gas that the amount of illuminating power is less, with a flat flame burner.

Mr. PAGE: This is in response to a question asked on your former cross-examination, Mr. Mathewson. Would you care to cross-examine him on that, or shall I go ahead with some other subject?

Mr. MATHEWSON: I think I should rather have you finish with the witness if you can, Senator.

Mr. PAGE: Certainly.

Q. Have you made any computation as to the quality of the Central Union gas to find its candle power for the year ending October 31st, 1905?

A. I made such a computation as is often made by gas men; that is, taking the quality of coal gas at 14 candles and taking the quality of the water gas as based upon the amount of oil used, and I find that the mixture of Central Union gas would give 23.1

4872 candles; that is, based on the 670,000,000 of coal gas at 14 candles, and 925,892,000 of water gas at 5.05 gallons of oil. Adding those candle powers together, I find——

Q. Wait a minute. The 925,892,000 of water gas at 5.05 gallons would give what results?

A. 25¼ water gas; and the average of the two would be for the two 23.1, as near as it can be calculated.

Q. Now, Mr. Edgerton, have you made a computation as to the efficiency of the 42nd Street plant, as compared with the results of the other stations of the Consolidated?

A. Yes, sir. The gas in the holder at the 42nd Street plant as given in Exhibit ZZ for identification is 34.96 cents, and the average cost of 21st, 44th and 99th Streets, at 31.05 cents, leaving a difference in favor of water gas of 3.91 cents. That difference in the output of the 42nd Street plant amounts to $48,454.47, which capitalized at 5 per cent. gives $969,089.

Q. That is the theory of depreciation for lack of efficiency, the details of which you gave in regard to the 42nd Street plant?

A. Yes, sir. That is, those plants lagged behind in efficiency to that extent.

Q. And to that extent an intending purchaser would be getting a plant that would cost to reproduce gas $48,454.47 more than the other plants of the Consolidated operating in the same city?

A. Yes, sir.

Q. That loss you capitalized at 5 per cent.?

A. Yes, sir.

Q. Now, have you made a similar computation in regard to the 21st, 44th and 99th Street plants as compared with any other companies in the city of New York?

A. I made a computation comparing those plants with the results at the New Amsterdam, taking the results of Consolidated as 31.05 and the New Amsterdam at 28.06.

4873 Mr. MATHEWSON: I think the witness ought to state where he gets this 28.06, because I do not think it is in evidence. I suppose he has not examined the books.

Q. First, is the New Amsterdam a water gas plant solely?

A. I so understand; it is so shown in the accounts of the testimony before the Commission.

Q. In the New Amsterdam case?

A. In the New Amsterdam case.

Q. You have examined the record in that case, have you?

A. I examined the account, made up by the State's accountants, said to be drawn from that report.

Mr. PAGE: It could not be made up by the State's accountant.

The WITNESS: The cost of the gas, Consolidated Water Gas plant, averaged 31.05, and for the New Amsterdam, 29.01.

Q. That figure you get from Exhibit 336 in the New Amsterdam record before the State Gas Commission, printed on Appeal pages 573, 574?

A. Yes, sir.

Q. Now you may proceed with the computation based upon that basis.

A. The difference in the cost is 2.04 in favor of the New Amsterdam, and multiplied into the output at the Consolidated makes $161,724.24 and that——

Q. Is that the entire Consolidated?

A. The three water gas plants of the Consolidated. It is 5 per cent. on the sum of $3,234,484.

Q. Have you finished your computation?

A. Yes, sir.

Mr. PAGE: We offer in evidence this exhibit 36 before the
4874 State Gas Commission, printed in the book on appeal, pages 573 and 574, down to and including the first total on page 574.

Received in evidence and marked State's Exhibit I.I.I.

Q. Referring to State's Exhibit I.I.I., will you state as to the percentage of tar produced by the New Amsterdam operation as compared with the percentage of tar produced by the Consolidated?
A. It would be 11.4 per cent.

By Mr. MATHEWSON:

Q. On what, or of what?
A. Of the oil used.

By Mr. PAGE:

Q. As against what percentage of the Consolidated plants?
A. 20.81 per cent. of the 21st Street, 24.7 per cent. of the 44th Street; 25.3 per cent. of the 99th Street.
Q. Did you make an examination of the 42nd Street plant of the Consolidated Gas Company?
A. Yes, sir.
Q. When did you make that examination?
A. I don't remember exactly what days now.
Q. Since making that examination have you had an opportunity to compute or to make the necessary computations?
A. No, I checked off the items as given here as to sizes of quite a number of apparatus they never allowed us to measure, and I have not had an opportunity to go into that at all in regard to checking off and as to the quantities. I only had an opportunity to——
Q. And the reason being you have been almost continuously on the stand since then?
A. Well, more, too, figuring up, and engaged in figuring up various data and looking for information we required in the
4875 case. I really had no time to go over this—I can say however in regard to that portion of 42nd Street which includes the dock and all the woodwork that——
Q. What do you mean by all the woodwork?
A. The woodwork is the trestle which carry the coal handling apparatus, it is very dilapidated indeed; in fact, it is in a condition which would require renewal at no very distant period. I should think the depreciation on that woodwork that is exposed to the weather that I saw there was fully 60 per cent. of its value. In fact, it would require an absolute renewal within a very limited period of time throughout. Also the handling of the coal along that dock is an expensive carriage. It is all done by men pushing carts and heavy wheelbarrows. The usual economy in practice in coal handling is by making the coal carry its own weight down an incline. This is neglected at that point and men have to be employed to push it. I have put in apparatus similar in which the loaded car of coal down a slight incline would carry the empty car back, and it is a very long trestle work and I suppose there are really more men employed there in pushing the coal and handling it in that way than in the other portions of the works. That is corroborated by the yield of gas per man at the works. Otherwise the works are in better shape than the 14th Street station, as they have full depth regenerative furnaces, double stage charging, and I should suppose it would

make quite superior results in regard to the output of gas per retort and per man were it not for the charges due to handling the coal.

Q. The criticism which you have made upon the question of coal handling, I understand is in the schedule under the head of "Buildings, Coal Sheds and Runway Overhead," is that it?

A. Well, the brick work. I speak of this portion here
4876 where it says—I see these runways are not valued very highly on the inventory.

By Mr. MATHEWSON:

Q. You mean by Mr. Mayer?

A. I mean by Mr. Mayer. If that includes all, of course the runways are certainly very dilapidated and the trestles are certainly very dilapidated. If the whole is comprehended in this $1,000, I do not think that would be out of the way. I had not noticed his valuation.

By Mr. PAGE:

Q. Well, is the whole thing included in that?

A. Well, it would require further investigation. After the making of this inventory I was filled with work of various other kinds, running here and there and making out tables, and I have had no opportunity——

Q. In connection with this case and in connection with the testimony you have been giving here?

A. Yes, sir. I have simply been working night and day and it was utterly impossible to go over the details which are given.

Q. If you had a little more time it would be an easy matter for you, from the notes that you have made, to testify in regard to this matter, wouldn't it?

A. Yes, I made rather ample notes.

Q. How much time would you need?

A. I would like to rest a little bit. I cannot say.

Q. Well, answer the question if you can.

A. Why, I could go over those papers in a couple of days, I presume, by working the same way that I have been working and working day and night.

Q. Can you from the notes that you have state the condition of the apparatus as you found it without giving the detailed figures?

4877 A. I found, as in the case of the 14th Street works, that only about two-thirds of the apparatus was in action in the generating plant. The purifier house is very old, and the roof is dilapidated; you could see daylight through it in a number of places.

Q. What about the apparatus in the purifier house, was that in pretty good shape?

A. The purifiers I should not allow very much depreciation on. They are in fair shape, although very old and constructed for lime, which they are also using now; they are using lime purification there to some extent. The meters I was speaking about, which I stated were of a very antiquated make and which I ascribed to 14th Street, would require considerable depreciation unless the drums have been

recently renewed. You understand, the depreciation on station meters goes on within.

Q. Have you got it there?

A. No, I have not got it here.

Q. Take it as you go along, take the sheets one by one.

A. Those are computed at $10,875. I should allow some depreciation on them unless the drums have been renewed recently, and that I could not tell.

Q. In the schedule that was furnished you at 14th Street it stated what drums they had in the meter, and from that you were able to state that they were of a more recent construction?

A. Yes.

Q. Is there anything on this that would indicate that other drums have been put in?

A. No, there was no other indication or statement that they had renewed the drums, and the cases, as I said before, were of Gratz & Company, of Philadelphia; they must be forty years old, all of that.

Q. What have you to say about these benches?

A. The retort benches were of a much better type than the 14th Stre-t station and ought to give superior results, but there
4878 were one-third of them out of action.

Q. Due to what?

Mr. MATHEWSON: Does he know?

Mr. PAGE: If he does not, he can say so.

A. Well, there were quite a number of them dropped, that is dropped for resetting, but one stack of them—one side of one stack, they were engaged in firing up at the time I was there, that is there was smoke coming out and they were putting fire under them. And I went back a couple of days afterwards to see if they were getting along any, and I saw they were not.

Q. What do you mean by that, that you went to see if they were getting along any and you found they were not?

A. I found the fire was not pushed, it was simply smoking and smouldering along in the same condition as on the previous day. I didn't know whether they had really made up their mind to fire the stack or were simply drying it out.

Q. Were they making gas in it?

A. No, it was not in a condition to make gas. It was just barely warm.

Q. And the same on each occasion?

A. Yes.

Q. Were the doors open?

A. It was not being pushed at all——

Q. The question was, were the doors to the retort open?

A. No, the indication about that is in these regenerative types, they put coke in and it fires up, and it takes about—well, after a bench is fairly dry, they would be simmering along for some little time before they put heat in them.

Q. Had these benches recently been reset or anything of that sort?

A. Yes, I think they had been reset.

4879 Q. What have you to say as to the physical condition of the benches?

A. They were in fair condition, those that were in operation, and I looked in all those I had an opportunity, except where the lids were off and they had a fair heat on and they were in fair condition except the oil gas portions. Those were filled with carbon. The oil gas was made in retorts about 20 feet long and what we call a through-and-through setting, seven to a bench, and from what I saw of those it looked to me as if they were in bad condition for making oil gas; in fact the results from them are poor also.

Q. Have you your notes here of this station? Why don't you take those?

A. Those were notes taken down by Mr. Midgley, as I was examining. I don't have them here; I do not suppose I was going to testify in detail in regard to the 42d Street station until I had an opportunity of figuring it up.

Q. Well, can you go on at all or not on this apparatus, Mr. Edgerton?

A. I do not like to go into details on apparatus I have not figured up, no, sir.

Q. What have you got to say about the condition of the buildings?

A. The retort house building is in very fair condition; there is nothing to be complained of about the condition of the retort house. The purifying house, as I said, the damage was in the roof and the roofs of a number of other buildings, coal sheds and so on, are not in good order.

Mr. PAGE: I do not see that it is really profitable to continue this examination.

The WITNESS: As I stated, I had no idea that any details were to be gone into in regard to 42d Street.

Q. And it is impossible for you to testify in regard to this 42d Street plant without sufficient time to calculate from the notes
4880 that you have or speak from the notes that you have already made, the value of the articles and the element of depreciation based upon the physical appearance, physical condition, is that it, Mr. Edgerton?

A. That is so. I took along a gentleman with me and he made the notes while I looked over the buildings, and my intention was to go over them rather thoroughly and figured out comparative costs.

Q. Have you been able, in the time you have not been on the stand, to make any examination of the 21st, 44th and 99th Streets plants?

A. I have had hardly time to eat my meals.

Q. Will you answer the question, please?

A. No, sir.

Q. How long would it take you to make an examination of those other portions of the plant and make the computations?

A. I think I could make an examination of the salient features, and as I have some plans to calculate from in regard to some of the apparatus contained, I could make it within ten days. I have more definite information in regard to the Lowe machinery and the set-

ting of brick work which they put inside and the details connected with it.

Mr. MATHEWSON: By Lowe machinery you mean water gas machinery, as compared with coal gas machinery?

The WITNESS: Water gas machinery, yes. Coal gas machinery has been rather out of date for many years and engineers have not given it as much attention on this side of the water as they have water gas.

Q. Well, do you mean that in a week or ten days you could complete the examination and complete your computation and be ready to testify?

A. I could on the salient features, without going min-
4881 utely into all these little outhouses and buildings that are listed here.

Q. That is by taking that portion of the apparatus that would be liable to depreciation, and that would constitute an important element in the value of the plant?

A. Yes, skipping over the minor matters and going only into such as were of importance.

Q. Mr. Edgerton, you used an expression in answer to one of Mr. Mathewson's questions, that there is no such thing as 34 degree oil, or some such phrase as that. What do you mean by that?

A. I meant that it was a misnomer to call any oil a 34 degree or 28 degree oil; the fact is that it is a mixture of a great range of oils; it is impossible to have an oil of any one degree, a 34 degree oil might range over from 47 down to 25, owing to the different component parts.

Q. You did not mean that there is no such think known commercially as 34 degree oil?

A. No, but I meant——

Q. If I understand you, and if Mr. Mathewson will not object, you mean there is no oil of 34 degrees alone or any particular degree alone.

A. No.

Mr. MATHEWSON: It is what they call a "blend" in whiskies, or don't you know?

The WITNESS: It is a matter of the greatest difficulty to isolate a single degree of oil; it would require fractionation and refractionation and redistillation a number of times and then you would only end up with a small percentage of the amount you started with.

Q. And it is the average which gives it its commercial degree, as shown by the hydrometer?

A. That is all, as shown by the hydrometer, and for that reason all this particularization about degrees of oil in my experience is just simply empirical. I know how it originates; it is from the men handling the apparatus; if anything is out of order it is——

4882 Q. You mean degrees of oil for use in gas making?

A. In gas making. They very commonly say the oil is bad. They say if the machine is kicking, they say it is bad oil, and that relieves them from any more care or trouble about it. For that

reason, I have had to make quite an examination into the oil feature in water gas and I find that the difficulties in handling oil are due to other features than simply whether it contains a certain quantity or one fraction or the other.

Q. What degree of oil do you use at Danbury?

A. Any degree, it doesn't make any difference, so that they can get it in a vapor, and it goes through the retorts. The heavier the oil the higher candle power gas it will make for the same number of cubic feet.

Q. What price do you pay at Danbury for your oil?

A. 4.2 cents, I think it is.

Q. What price have you been paying heretofore?

A. Well, I have paid, I think, as low as 3½ or 3¾. I found that at Norwalk what would be called by the generality of gasmakers, a superior oil was 3¾ cents——

Mr. MATHEWSON: Just a moment. I am going to object to the testimony of this witness about Norwalk unless he knows something about it. We have had a good deal of this, and it seems to me it is time to stop.

Mr. PAGE: Well, you have had very little so far about Norwalk.

Q. What is Norwalk?

A. Well, South Norwalk is the center of distribution for a great quantity of oils. They have about a dozen large tanks there, the Standard Oil Company, and they distribute from that point to the various users throughout Connecticut and some parts of Massachusetts.

4883 Q. Have you recently visited the tanks in the yards at South Norwalk?

A. Yes, sir, I have seen them twenty times within the last year, I reckon.

Q. Have you obtained within the last month or two samples of oil from South Norwalk?

A. I did. I took a sample of oil right out of the Standard Oil Company's tank, delivering it to the electric light station.

Q. And what price was that oil?

Mr. MATHEWSON: Just a minute. Is there any evidence that this witness knows what price the oil was, and to whom, and what grade of oil? What is it? It seems to me that is objectionable, and I object to it. The witness has not been shown to be competent.

The MASTER: It does not seem to me it is very material, unless you get it down a little closer to the question here.

Mr. PAGE: Well, of course, we cannot do everything at once. That oil was brought down here and tested and fractionated.

Q. Did you inquire the price of the oil at the time you got it?

A. Yes, sir; I got it from the superintendent. It is a public matter there, it is a municipal plant there and their accounts are published.

Mr. MATHEWSON: I suppose then the superintendent can testify, and if the accounts are published, they can be produced?

The WITNESS: Yes, I can get you the accounts and can get you the bills.

Q. When you say the superintendent, is that the superintendent of the works or the superintendent at the tank yards?

A. The superintendent of the electric light plant or manager.

4884 Q. And he told you that he paid?

A. Yes, showed me the price and told me all about their contracts, and told when they had changed them and——

Q. Other than that do you know the price that the Standard Oil Company charges for that particular grade of oil at South Norwalk?

A. No, I don't know the price for any other parties except that electric station.

Q. This sample of oil, whatever it was, that you obtained there at South Norwalk, you brought here to New York, didn't you?

A. Yes, sir.

Q. To whom did you deliver it?

A. I delivered it to Professor Sherman of Columbia University, and directed a fractionation of it, directed freezing tests and Beaume tests and all the tests that are usually applied to oil.

Mr. PAGE: We will produce, if we are given an opportunity, this superintendent who will testify to the price of this Norwalk oil.

Q. Did you also bring down a sample of the oil that you use at Danbury?

A. Yes, sir.

Q. And did you deliver that sample to Professor Sherman?

A. I did. That was a sample of January 6, 1905. I think we were getting it at a little better price then than now.

Q. January 6, 1905?

A. Yes. We have at Danbury—I picked out from among the samples, there were about a dozen samples brought down. We make it a practice at Danbury to keep samples of the tanks. We have samples for four or five years back, I think, over a hundred of them.

Q. Do you know the price at which that oil was sold in 1905?

A. No, sir, but I can get that. I think it was a little less than at present.

4885 Cross-examination by Mr. MATHEWSON:

Q. Now, you figured an ideal cost price of 23.26 cents at the holder for gas of the Consolidated Gas Company to be manufactured under assumed conditions and I understand that that gas was to be chiefly enriched coal gas, is that right?

A. Yes, sir. The first——

Q. Enriched 14 candle power coal gas you said?

A. Yes, sir.

Q. You assumed then that the coal gas itself would produce about 14 candle power unenriched, did you?

A. Yes, sir, as the ordinary way of testing it with the argand burner.

Q. Well, don't you know that gas is tested with a flat frame burner in New York and not with an argand?

A. Yes, that is for the reason that the New York——

Q. No matter about the reason. I am asking you whether you know that to be the fact?

A. I know it is, and I introduced it myself, that is, I was instrumental in getting the flat frame burner introduced.

Q. What would be the candle power of gas tested in a flat frame burner which showed 14 candle power tested on the argand burner?

A. It would be about 11 candles, 11 or 12 candles, with the best flat flame burner.

Q. What proportion did you assume would be this coal gas enriched and what proportion water gas in your final mixture?

A. One calculation is half-and-half——

Q. No, this 23.26 cents. The enriched coal gas; my impression is that you said you added a little water gas to it in your estimate?

A. Oil gas.

Q. Oil gas?

A. I added a little water gas to the oil gas.

Q. Well, now let me know how much of your mixture
4886 would be coal gas, how much oil gas, and how much water gas?

A. It would be about—I have added 225 cubic feet of that mixture to the thousand.

Q. Which mixture?

A. Of the mixture of oil gas.

Q. And water gas?

A. Oil gas 70 per cent., and water gas 30 per cent.

Q. And this mixture composed of oil gas 70 per cent. and water gas 30 per cent. amounts to how many feet per thousand of the coal gas?

A. About 225.

Q. 225 feet mixed with a thousand feet of unenriched coal gas, is that right?

A. Yes, sir.

Q. Well, do you mean that this 225 feet of oil and water gas is mixed with one thousand feet of unenriched coal gas or that one thousand feet of the mixed gas is made up of 225 feet of oil and water gas and 775 feet of enriched coal gas?

A. Yes, you are right, 225 feet of the thousand are this mixture and 775 feet of the coal gas.

Q. You know that about four-fifths of the present output of the Consolidated Gas Company is water gas, don't you?

A. Yes.

Q. So that in order to produce more than three-quarters coal gas of the total output it would be necessary to reconstruct the water gas plants to a considerable extent, would it not, and substitute coal gas apparatus for it?

A. No, I assumed that the coal gas would be made at the new works.

Q. At the Astoria works?

A. At the Astoria works, and the water gas would be made over

here, that is, water and oil gas, that would be made in the water gas works.

Q. Well, that would be a substitution, would it not, if you simply take the present manufacturing capacity of the Consolidated Gas Company and reproduce it in coal gas?

4887 A. You would have to make an additional amount of coal gas to what you are now making, certainly, very largely.

Q. How would you mix them in that event and where?

A. Well, they would have to be mixed over on this side, they would have to make their arrangements to mix them before entering the holder properly.

Q. It is in evidence that the present output of the Consolidated Manufacturing plant is, say, ten and one-half billion feet, and they sell more than three billion additional per annum and that the first unit at Astoria will produce four billion feet or only one billion feet per annum more than the gas manufactured for the Consolidated by other companies. Then there would be no great surplus manufacturing capacity of coal gas in that event, would there?

A. No, I assumed in this that they would go on with the——

Q. And put on other units?

A. Yes.

Q. Even in that event it would take a considerable expenditure and certainly another unit in addition to the first unit at Astoria with a capacity of 4,000,000,000 cubic feet before you could get your production up to 77½ per cent. of coal gas as against 22½ per cent. of oil and water gas, would it not?

A. Yes.

Q. And it would virtually mean therefore the abandonment of the water gas stations in New York in large measure, no matter where that manufacturing capacity was replaced, if you were to get that proportion of coal gas, would it not?

A. They would have to shut down to a considerable extent on the water gas production, certainly, to make the addition of coal gas.

Q. I would like to have you give me again the elements which make up the cost of this unenriched coal gas, not deducting

4888 any residuals. We will do that later. Give it to me sufficiently slowly so I can follow it, please.

A. You add to the cost of coal gas up to the——

Q. I am trying to get coal gas in the first place.

A. Do you want me to go through all the details?

Q. Yes. You figured, if I understand you correctly, and assumed the same item in your later computation, that the net cost of material and labor after deducting residuals would be only 6½ cents?

A. 6.46.

Q. Now I want in the first place the cost of the material and labor in detail and secondly the items in detail which you deduct to produce that remainder of 6.46 cents.

A. Bituminous coal $3.20 a ton, yield, 10,600 feet to the ton, that is 32.2 per thousand.

Q. Short ton?

A. Yes, sir. Cost of unloading 10 cents per ton, charging and drawing coke, .44 cents, handling and yarding, 4.48 cents.

Q. Now give me the details of the 4.48 cents divided into the different classes?

A. I put that at, putting coal into the retort at 2.24 and drawing coke, quenching and yarding and handling coke at the same, that is 2.24 cents per thousand feet of gas; that included the purifying.

Q. Is that what is known a- yard labor?

A. Yes, that would comprehend all the labor except some under the term of general expense at works, which would include some labor, one-half cent 36.62 cents.

Q. Then if I understand correctly your total expenditures you figure in the unenriched coal gas are as follows.

A. No, that is what is wrong. It is not the total expenditure for unenriched coal gas.

Q. Well, the expenditures for unenriched coal gas, but not the total expenditure.

A. Yes.

Q. You put bituminous coal at $3.20 per short ton 30.2
4889 cents, figuring a production of 10,600 feet per short ton; unloading, ten cents a ton equals 1.44 cents per thousand; charging 2.24 cents per thousand; drawing coke, quenching and handling and all yard labor, 2.24 cents per thousand——

A. No, that does not include all yard labor. I said there was half a cent more.

Q. Except superintendence?

A. No, a half cent in general expense at works.

Q. By labor it includes all except half a cent for superintendence and half a cent for expense in general expense?

A. Yes.

Mr. PAGE: It includes .5 of a cent for superintendence.

Mr. MATHEWSON: That is brought in later.

Q. Then .5 of a cent for superintendence?

A. Yes.

Q. Making a total of 36.62 cents, is that right?

A. That is so, but it does not bring the total until it gets into the holder.

Q. I have not got to that point yet. What rates did you charge for labor in the yards in computing this 2.24 cents?

A. $1.75 for ordinary labor and $2.50 for gas labor, gas makers.

Q. How many hours per day?

A. Two shifts 12 hours.

Q. Each?

A. Yes.

Q. Now, how many men did you allow, the same number that the Consolidated is now employing or did you not know how many they are employing in that connection?

A. I allowed a compromise between the amount they employed in their coal gas works, that is a yield per man, I think, of 24,000 feet, but this is based upon inclined retorts and handling an entirely different apparatus. It is much more economical than the ordinary

coal gas plant. In fact, it is based on about 3 cents for labor,
4890 for retort house labor and for other handling besides that.

Q. You find no inclined retorts at present in the Manhattan plants, however?

A. No.

Q. And didn't you know that in the construction of the Astoria plant, after a long consideration, that not all inclined retort- were installed there?

A. I understood they were about half and half, that is, they were going to try half horizontal and half inclined.

Q. Now let us take the additional items, to be added to the 36.62 cents to make the total cost in holder before residuals are deducted.

A. That is exclusive of the oil gas enriching?

Q. Yes.

A. Repairs to apparatus and buildings 4½ cents; purifying material, lime .75; oxide .25.

Q. That is a total of one cent?

A. A total of one cent for purifying material.

Q. Without labor?

A. Without labor, oil and waste .37 cents, such water as is required around for washers and so forth, .17 cents. General expense at works, which includes odds and ends of labor and draying, expressing and such items as I generally put into general expense, .5 of a cent. Those are the coal gas items.

Q. That makes how much, added to your 36.62 cents?

A. I do not add them—I then after——

Q. Won't you do so now? I would like to proceed from that point.

A. 43.16.

Q. Now that is the total of your unenriched coal gas before residuals are deducted, is it?

A. Yes.

Q. Now will you be good enough to tell me what your residuals are in detail?

A. I allow 1,320 pounds of coke per ton of coal, coke and breeze.

Q. And you figure the price received at how much?

A. I deducted from that 20 per cent. as the amount they used in firing the retorts and the balance I take at $4.00 a ton valuation, making——

4891 Q. Does that include the breeze?

A. Yes, that includes a percentage of the breeze. I used that——

Q. Making how many cents per thousand?

A. Making 19.8 cents per thousand.

Q. 19.8 cents per thousand for coke?

A. For coke. Tar, 12 gallons at 5 cents——

Q. Makes how much per thousand?

A. 5.65 cents.

Q. Per thousand feet of gas 5.65 cents for tar is that right? That must be a mistake, is it not? You said 5.68, I thought, before.

A. Yes, that is erroneous. It is based on a ton.

Q. Well, that 5.65 cents was based on a ton of coal, which was an error, was it not?

A. Well, the twelve gallons is based on a ton of coal, yes.

Q. Won't you correct that error and see what it should be?

A. It is .56 of a cent.

Q. .56 of a cent, is it not, instead of 5.65 cents?

A. Yes, although that seems to me to be a low figure for tar return.

Q. Well, we are taking your own figures and correcting the error which you made in your first computation, keeping your other figures; the result would be .56 of a cent, would it not?

A. Yes.

Q. Now, what is the next item of residuals?

A. Ammonia liquor.

Q. And how much of that do you allow and at what price?

A. Well, now, that price is at about 28 pounds of sulphate of ammonia to the ton. I have not—I got that by allowing 50 cents per ton receipts. I do not think that would correspond exactly. In fact, it would probably be a little higher. I had to figure that out last night without having got hold of the wholesale price of sulphate of ammonia, and therefore I put that in there at 50 cents on the ton.

Q. Well, fifty cents on the ton of what?

A. On the ton of coal.

4892 Q. On the long or short ton of coal?

A. Short ton of coal.

Q. Well, that is 4.7 cents, is it, on that computation?

A. 4.7 cents.

Q. Now, is that all the residuals that you deducted in your computation?

A. That is all.

Q. Well, that makes how much for residuals—is that .47 of a cent or 4.7 cents?

A. .47 of a cent, according to that calculation.

Q. So that makes a total of how much for all residuals?

A. 20.83 cents.

Q. Is it 20.83?

A. Yes, 20.83.

Q. Now, if you deduct 20.83 from your total cost of material and labor which was 43.16, you get a net cost for the unenriched coal gas of how much?

A. 22.33.

Q. And if you deduct 20.83 from your 36.62 which you used in your original computation, you have a remainder of how much?

A. From 36.62?

Q. Yes, and if you subtract your residuals from 36.62, because you did deduct your residuals before from 36.62, and you got a balance of 6.46 as the net cost of labor and material before some other items were put in—I want to find what that should be?

A. 15.79.

Q. So that instead of being 6.46 cents as you said on your direct-examination, it should be about 150 per cent. greater than that, or a total of 15.79?

A. 15.79. There must be some error there still, for I have not compared that with the Central Union residuals of 29.06——

Mr. MATHEWSON: Well, perhaps the Central Union made a mistake and got too much, but we will take your figures, and if that disposes of the coal gas unenriched, we will pass on to the oil gas.

At this point a recess was taken to 2:15 P. M.

4893 After Recess.

HENRY H. EDGERTON resumes the stand and further testifies:

Cross-examination continued by Mr. MATHEWSON:

Q. In your computation you gave unloading as ten cents a ton, or as 1.44 cents per cubic foot. The number of cubic feet in a ton is 10,600 you stated?

A. Yes.

Q. How do you get 1.44 cents by dividing ten cents by 10,600?

A. That is an error in the decimal points there. It should be——

Q. It cannot be an error in the decimal point, because it would not be 1.44 cents regardless of the decimal point, would it?

A. Well, I will tell you how that occurred. I can see there an error plainly. I took discharging at 15 cents a ton, and then I come to consider in figuring it up I had coal unloaded at 12 cents a ton, at $3, in Butte and various other places. It was 10 cents a ton in Danbury for unloading coal, and so I changed that to 10 cents a ton accidentally in place of 15. The price of $1.44 was got from 15 cents a ton.

Q. Then 1.44 cents is error?

A. Yes, that should be 14.4.

Q. No, it would not be 14.4, would it? Suppose you divide 10 cents by 10.6, because there are 10,600 cubic feet, are there not?

A. Yes. I say in the first calculation, judging 15 cents for unloading and dividing by 10.6, I got 14.4, and with the cost of unloading to 10 cents, would bring it to——

Q. .94 cents?

A. No, it would be .94.

Q. Yes.

A. That is, I mean .094.

Q. Now, what do you make it?

A. I make it .094.

4894 Q. .09. Now, as a matter of fact, if you divided 10 by 10.6, doesn't it give .94 instead of .094. It is about one-tenth, isn't it, a trifle less than one-tenth?

A. No, it is 10 cents on a ton and there are 10,600 cubic feet to a ton.

Q. So that your final figures are .094?

A. Yes.

Q. Then your computation should be corrected in that respect, should it not, as it now stands?

A. Yes, sir. I think it needs correcting in several particulars.

Q. Then if you divide 15 cents by the amount of gas that one ton

produces that could not have produced with accurate division 1.44 cents, could it?

A. I think pretty nearly.

Q. Well, could it? If dividing 10 cents by 10,600 or 10.6 produces .09, how could dividing 15 cents by 10.6 produce 1.44?

A. Well, it is a mistake in the position of the decimal point, I see.

Q. It is a mistake even if you divided 15 cents by 10.6 originally, wasn't it?

A. I don't know as it is out of the way.

Q. Supposing you divide 10 by 10.6?

A. 15 by 10.6.

Q. That is 1.44, isn't it?

A. That is 1.44.

Q. Then if you divide 10 cents by 10.6, it would not be .09, but it would be .94, would it not?

A. No, sir.

Q. Will you divide 10 cents by 10.6 and see if that does not give .94 instead of .094?

A. No, that would bring, if you multiply them back—you would get ten cents, instead of that you get one dollar.

Q. Well, what do you get by dividing 10 cents, then, by 10,600?

A. I get .094.

Q. Well, now, that is what you would get if you divide 10 cents by 10.6. Now, I am willing to take your answer. Ten cents
4895 per ton would be how much per thousand if a ton produces 10,600 feet?

A. That would be 9 cents, I think.

Q. .94 of a cent, wouldn't it?

A. Yes, sir.

Q. Now, you took $4 per ton as the value of coke residual, on the theory that it would be used instead of anthracite coal under the boilers or under the apparatus producing coal and water gas, didn't you?

A. I proposed to use it in the generators, yes.

Q. Well, the generators mean coal and water gas, don't they?

A. Yes, sir.

Q. You did not find that the coke actually sold for $4 a ton by the Consolidated Company, did you?

A. No.

Q. And you made this allowance on the theory that it would be used under the generators?

A. A portion of it, yes.

Q. Now will you tell me whether if you produced the amount of enriched coal gas which you proposed and only 225 feet out of each thousand of water and oil, whether you would use more than 5 per cent. of your total production of coke under the oil and water gas generators?

A. Well, you would not use a very large percentage of it.

Q. It would not be more than 5 per cent. at the outside, would it?

A. I have not figured that up. I think it would be a little more than that.

Q. And what you did not use under the coal and coke generators you would be obliged to sell, would you not?

A. Yes.

Q. And if we produced that amount of coal gas it would make more coke on the market than there is now, wouldn't it?

A. Yes, sir. Still, I consider $4.00 a ton would be——

Q. I understand what you consider. I am getting at the figures now. Now, let us take the sulphate. What price did you expect to get for that in these conclusions of yours?

4896 A. Well, my calculation was made up yesterday. I did not have access to any market figures about those prices, and I supposed my prices balanced the Central Union, but I found this error in calculation had thrown them out somewhat, and that is what misled me.

Q. Well, do you want to revise your calculation as to that?

A. Yes, I think that it should be revised to the prices of products here. This morning I tried to get a price on one of these products, and yesterday I took that from recollection, from what my experience was.

Q. What did you take in this computation from recollection as the price for sulphate?

A. I took the yield of the sulphate, I think, about thirty pounds to the ton of coal, and——

Q. Thirty pounds to the short ton?

A. Thirty pounds to the ton of coal; twenty-eight to thirty pounds.

Q. Well, how much does that mean per long ton?

A. That would mean slightly more than about ten per cent.

Q. It would make between thirty and thirty-five pounds per long ton, wouldn't it?

A. Yes, I think twenty-eight pounds would be a fair statement of that.

Q. Was that what you assumed in your computation?

A. I think it was about twenty-eight pounds.

Q. Then per long ton that would mean nearly thirty-one pounds, wouldn't it?

A. Yes, sir.

Q. Don't you know that the general experience in this country is a little over twenty pounds, instead of thirty-one pounds of sulphate?

A. No, I don't know that. I tried——

Q. You know they get a little more in England than they get here because they run lower heats?

A. I don't know as they get any more. I should think it would be about the same, with the same care.

4897 Q. Well, you found there was more sulphate than was actually obtained, didn't you by the works in New York?

A. I don't know as they make any sulphate at all. I didn't see any evidence down there. I think they trade off their ammonia liquor and sell it as liquor.

Q. Now, give me the name of any company here or hereabouts,

a large company, that is producing thirty-one, or anything over thirty, or even thirty, pounds of sulphate per ton?

A. Well, I don't remember since the New Orleans Company gave up making sulphate of any figures in connection with it. I have forgotten. My recollection, however, was that they made as much as that, but it has been quite a number of years; I would not be positive about it.

Q. Don't you know as a fact that the average obtained per long ton of sulphate in this country does not much exceed twenty pounds per thousand feet?

A. I should think that was a very small yield.

Q. That may be so, but don't you know that that is the fact?

A. No, I do not.

Q. What price did you calculate for sulphate?

A. Well, I had not access to prices. As I say, I was trying to quote the market this morning on it to see if I could confirm my price. I found since, though, that the price here is $4 and a fraction a hundredweight.

Q. That is the price you used in your computation?

A. No, I didn't use that price; I used a lower price, but that is the price here. I don't know that it would be called a wholesale price. It is the best price I could get.

Q. What price did you use in your computation?

A. I did not use a price on sulphate, because it is based more on the liquor than the sulphate, because most gas companies here sell their liquor, and do not treat it for sulphate. It requires a
4898 special plant, a sulphuric acid generating plant and a lot of paraphernalia.

Q. Where do you get in, in your statement of expense here, the cost of producing the sulphate from the liquor?

A. Well, I have not gone into producing the sulphate from the liquor. The gas company here does not do that, and they are somewhat at sea about that, so we have to go into it in another way. I looked at the Central Union sales of liquor, and, seeing that it corroborated their sales for residuals, corroborated my own offhand figures. I did not look farther into it. I took the ammonia at——

Q. But if you sell sulphate and regard it as a residual, you must include in the expense the cost of producing the sulphate from the liquor?

A. Certainly.

Q. Where is there in this statement of "cost to holder" which you have presented, where is that expense provided for?

A. I did not go into details of that expense of making sulphate of ammonia. I did not consider it that way. I looked at it just as most of the companies sell it. They sell it as a liquor. I do not think that there are very many manufacturing plants in the country that turn it into sulphate of ammonia.

Q. Well, did you allow fifty cents per ton for the liquor?

A. I allowed an amount for the liquor that I consider was justified by the receipts of the Central Union.

Q. Well, what is that amount that you allowed, regardless of where you got it?

A. I got it from this book somewhere.

Q. Which book?

A. The Central Union printed case on appeal. I got this more to back up my offhand estimate. "Ammoniacal liquor and receipts therefor, $17,514"; page 210. And that is based upon 670,518,000 cubic feet of coal gas.

4899 Q. What do you mean by saying you took fifty cents per short ton and dividing that by 10,600 feet produced by a ton you got .47 cents? What was it that you computed at fifty cents per ton? The ammoniacal liquor?

A. The value of the ammoniacal liquor proce-ding from a ton of coal; but I see I have made an error there, in that it is too low.

Q. What is too low?

A. The fifty cents.

Q. Do you know of any company hereabouts that gets fifty cents per ton for ammoniacal liquor?

A. That is all. I have got the $17,514——

Q. From the Central Union?

A. From the Central Union.

Q. Outside of that you don't know of any company hereabouts that gets fifty cents per ton for ammoniacal liquor?

A. Per ton of coal, you mean? . I based it on the ton of coal.

Q. You based it on fifty cents per ton of coal?

A. Yes. I see there is an error.

Q. The Central Union does not get any such figure as that, does it?

A. I think they get more, according to their statement here; $17,514.06.

Q. Won't you look at the Central Union record to which you have referred and see if the Central Union does not get about three cents per thousand feet?

A. I think they get calculated out according to that 2.62 cents; yes, sir.

Q. And if you multiplied 2.62 cents by the number of cubic feet in a ton, number of thousands, that would be multiplied by 10.6, wouldn't it?

A. Yes, sir.

Q. Wouldn't that give only twenty or thirty cents per ton instead of fifty cents? Just figure that out and see how much that would be, multiplying that by the number of thousands produced by the ton at the Central Union coal gas works? 27.77 cents, wouldn't it?

A. Yes, sir.

4900 Q. 27.77 cents, that would be the result instead of fifty cents, wouldn't it?

A. Yes, sir.

Q. Now let us take the subject of tar. You computed tar at how much; five cents?

A. Five cents a gallon.

Q. Don't you know that that is very much greater than the market price for tar in the City of New York?

A. Oh, I just had a quotation in quantity at nine cents.

Q. Had a quotation of what?

A. I simply telephoned to a large dealer.

Q. Let us have the name of the dealer? Tell us the name of the dealer, will you?

A. That I have forgotten. It was just through the telephone communicated; it was to see how it varied from my figures.

Q. That was for refined tar in the City, wasn't it, that you got the quotation, and not for tar liquor that had been produced by a gas company in that shape?

A. The inquiry was for coal tar, just the ordinary coal tar, and no refining about it, because when it is refined it is not coal tar any more.

Q. Was that the price at which this concern to which you telephoned could purchase the ordinary coal tar or the price at which they were selling the ordinary coal tar?

A. That was the best price. That I understood to be the buying price; I understood it was such a price as could be obtained.

Q. Try and think of those people, because we would like to make their acquaintance. Try to think for a minute. I want to know who that is that is willing to give that price.

A. A third party put me in communication with them over the telephone, just simply to see what difference there was between my own assumption of the cost price of tar and what they really obtain here in the city, to get New York City conditions, if possible.

4901 Q. Was it a price for a large amount of coal tar, or was not any amount stated?

A. The idea was to get their price for a large amount.

Q. Did you yourself talk with these people over the telephone?

A. No, I don't think I did.

Q. Who did?

A. Mr. Kirby did, I think.

Mr. MATHEWSON: I wonder if Mr. Kirby, who sits here, would mind giving us the name of the concern that would pay that price?

Mr. KIRBY: I will give it to you, but not on the record.

Q. You don't know, then, that the price which the companies are able to obtain for coal tar in the City of New York exceed little, if any, 2 cents instead of 5 cents, do you?

A. Well, I never knew of tar being sold at any such low prices.

Q. You never sold any in New York nor bought any, did you?

A. Everything seems to be different here from everywhere else.

Q. Well, it is different in some respects, in a good many items, of course?

A. All items the company buys are dearer, and everything they sell cheaper.

Q. How much coal tar did you ever sell from one plant, do you think?

A. Well, I sold altogether, I think that I sold some 100,000 gallons at Butte, maybe more than that, because they took the Helena supply also at 17 cents a gallon. I sold it at $5 a barrel and considered that a very low price where there was any asphalting going on and I should think you have plenty of it. I guess the middlemen

must milk you out pretty well there on prices, for with all the asphalting going on and the use of coal tar——

Mr. MATHEWSON: I move to strike out this testimony of
4902 the witness now as to the quotation he got for coal tar, on the ground that the witness did not get any such quotation, but it was gotten by another gentleman who is not on the stand. I cannot very well follow this up and cross-examine through this witness as to facts collected by some one else.

The MASTER: I suppose you are entitled to have it stricken out. I do not see what particular advantage it has. It appears on the fact of it that it is not of any great value. If it is stricken out I suppose the Senator can insist upon its remaining on the record anyway and getting his exception.

Mr. PAGE: Yes, I would take the exception because of all the concealments that have been made from the record of the names of parties that are dealing with the Consolidated Gas Company, and in view of our submitting to it it hardly seems that such a rule should not apply to the other side in one instance.

Mr. MATHEWSON: On the contrary, in the case of every person with whom we have dealt the contract is in evidence here, filed with the Master, and shows exactly with whom it is, and it is subject to your inspection. It merely has not appeared at length on the minutes.

Mr. PAGE: I will submit Mr. Kirby as subject to your inspection. He says he will tell you.

Mr. MATHEWSON: Very good.

Q. That, I think, exhausts the subject of the enriched coal gas. Now let us take the oil gas. Do I understand that you manufacture the oil gas separately and the water gas separately and then mix the two, making 225 feet out of each thousand of the total mixture?

A. I have here at the rate of thirty cubic feet of water gas
4903 to seventy feet of oil gas, and propose to use 225 feet of that mixture to bring up the thousand.

Q. I understand that. Let us take the 70 per cent. of the 225 feet which is oil gas. Please give me the details of the cost of that oil gas?

A. Oil is reckoned at 2 gallons at 4.23 cents, that is 8.46 cents; generator coal per thousand feet of that mixture of gas, 20 pounds per thousand.

Q. Which mixture, I am talking about the oil gas now.

A. Well, that mixture, oil gas and water gas, it takes less actually—I have used actually twenty-eight pounds per thousand make and on a small scale compared with that.

Q. Yes, at what price?

A. I took that at $4.00 a short ton. That amounts to one cent per thousand.

Q. That is coke that you took, assuming it would come from the coal gas plant?

A. Well, coke or coal. Then I put in for labor .3 of a cent for that amount, 225 feet.

Q. .3 for what?

A. For that proportion of oil and water gas 225 feet. I do not add it in for a thousand because this calculation for a thousand is based on the whole amount. It is only based here on this 225 feet. It would be 1,000 divided by 225 and multiplied by .3, would be actual labor for the oil and water gas parts.

Q. Labor is .3 of a cent, is it?

A. Labor is .3 of a cent for 225 feet, that is the proportion.

Q. But we are not getting at the oil gas at all. Can you not give us the oil gas and water gas separately? Seventy per cent. of your 225 feet was going to be oil gas. I am trying to get at the cost of that oil gas.

A. That is the way I got at it here. I charged the percentage——

Q. You said you computed seventy per cent. of the 225 feet as oil gas and thirty per cent. of the 225 feet as water gas, and now
4904 I am taking the cost of each.

Mr. PAGE: But they are to be made in the Lowe apparatus, so the water gas is to carry the oil gas through the super-heater, and it cannot be separate labor because the water gas, the steam goes into one end of the generator and the oil at the top and they mix up and go into the super-heater.

Mr. MATHEWSON: I understand, unless he separates it by some way of apportionment——

Q. You did separate it, did you?

A. No, I proportioned the cost per thousand on the whole body of the gas on the basis of 225 feet for the oil and water gas. That seemed to be the most feasible way of carrying it out, for it then brought the price per thousand of the whole product. And, by the way, I am not sure that I deducted that 225 feet of oil gas and—whether that should not have been added to the thousand of coal gas, making the combined gas 1,225 instead of one thousand feet. However, that would require a new examination.

Q. Can you not tell, because that is quite important in our comparison?

A. Well, it is important both ways. I have stated it at 225 feet of oil and water gas and 775 feet of coal gas. But from the way it is put in here I am a little uncertain whether that should not have been added, for I have calculated the total cost of the coal gas up to that point at 14 candle gas and it would depend entirely whether that 225 feet would enrich the thousand or the 775 feet. I would have to revise my calculation in that respect.

Q. If it were going to enrich a thousand feet of coal gas you would require a higher candle power oil gas than if it were going to
4905 enrich 775 feet?

A. Well, this is of a very high power.

Q. I understand, but it would require more enriching to enrich a thousand feet of coal gas than 775 feet, of course?

A. Yes.

Q. Let us try to make sure now just what your amount of coal gas to be enriched is, whether 775 feet or whether 1,000 feet?

A. Well, I would have to go into an extended calculation on that,

of the proportioning of the candle power of those two gases and dividing——

Mr. PAGE: Can you do it now, Mr. Edgerton?

The WITNESS: I do not like to undertake that in the confusion, my mind is a little confused on other matters and in figuring out, I am not sure about it, whether it is the 1,225 feet or 1,000 feet. It would require going into a detailed calculation on the——

Q. Now, as a matter of fact, Mr. Edgerton, you figured your two gallons of oil at 4.23 cents per gallon or a total of 8.46 cents as producing 225 feet of gas, didn't you?

A. No, it would take a great deal more gallons than that.

Q. How many feet of gas did you figure that would produce, 70 per cent. of 225?

A. It would increase the number of gallons of gas and water gas by the ratio between the 225 feet and the thousand feet. I have not got this down here. It has been calculated off of the books——

Q. But how many cubic feet did that two gallons of oil amounting to 8.46 cents represent?

A. I will have to figure that up. What is the question?

Q. How many cubic feet do the two gallons of oil at 8.46 cents represent or produce? You have said it was not the 225 feet. Was it seventy per cent. of the 225 feet?

A. Well, the two gallons of oil alone at the maximum yield
4906 would be about 140 feet of gas, that is allowing seventy feet to the gallon.

Q. Of what candle power?

A. Well, that would be according to whether it was used pure or whether diluted with water gas.

Q. Well, used pure for the present?

A. Well, the candle power would be decreased, using it pure. It is increased by putting some water gas in it.

Q. Just give us 140 feet of pure oil gas?

A. Well, figured in the combination——

Q. No, not figuring in any combination.

Mr. PAGE: Give it pure if you know what it is.

Q. What candle power will be produced in 140 cubic feet of gas produced by two gallons?

A. About sixty used alone, but used with other gases——

Q. I have not got to that. Please answer my question and we will get there ultimately, I assure you. What candle power will these two gallons producing 140 feet yield, or what candle power will that pure oil gas be?

A. Well, burned in the best flat flame burner it would be about sixty candles.

Q. Why do you take two gallons producing only 140 feet in this comparison? What are the 140 feet? I understood you to say that the oil gas was about seventy per cent. of the 225 feet?

A. Yes.

Q. It would be much more than 140 feet?

A. It would be slightly more, yes. It would be——

Q. It would be 157½ feet, would it not, seventy per cent?

A. Yes, it would not be—no it would be a greater amount than that.

Q. Seventy per cent. of 225 feet would be 157.5 feet, would it not?

A. Yes. You are calculating on the 225 feet?

Q. Then seventy per cent. of the mixture of 225 feet mixed oil and water gas would not be oil gas, would it?

4907 A. Thirty per cent. would be water gas and seventy per cent. would be oil gas.

Q. Well, would it be seventy per cent. oil gas?

A. Not quite, no. There is a slight difference there. I supposed it was a yield per gallon that I got, to——

Q. You generalized it, didn't you?

A. No, I have got out of oil all the way from——

Q. Well, in this computation you generalized it, didn't you?

A. I did not take any one result, I took a computation of the average results. It is not based on any particular result.

Q. Then we are going to get 140 feet, I judge, of oil gas out of this, that will leave how much water gas?

A. 85 feet.

Q. You cannot give the additional elements beyond the oil in producing the oil gas separately, can you?

A. I gave the coal and labor, but it is a figure implied in the whole mixture of gas, that is, the coal and oil.

Q. And when you gave the coal and labor as one cent, you said it was one cent per thousand feet. Did you mean one cent for 225 feet?

A. No, it is one cent based on the whole mixture of gas, that is, it would be the increased amount.

Q. On what whole mixture, oil and water?

A. Oil and water and coal gas, the whole thing is calculated on the basis——

Q. We have got rid of the coal unenriched gas. Now, I am trying to get the oil and water gas which are made separately and mixed together with the coal gas.

A. I would have to go into another calculation entirely to meet your views on that. It is calculated on the basis of the whole mixture of gases.

Q. Well, I do not understand why you took two gallons of oil and figured on the basis of 225 as to your oil if you figure 1,000 feet in your other elements of cost?

4908 A. Well, the statement of 225 feet is just based on that percentage of mixture. The actual cost per thousand is based on the thousand feet of the whole gas. I made no calculation here on the separate costs of the oil gas. That was put in on the basis of being a thousand feet enriched gas or 1,225, it may be here, for I may have added that. I would have to calculate whether the 225 would give the candle power required.

Q. And you do not know now, do you, whether it is 1,225 feet or 1,000 feet?

A. I could not go it without aliquoting and making the proportion of candle power of 14 and the oil and water gas——

Q. Do anything to satisfy yourself because that is a matter of importance, to know whether you used the oil and water gas mixed with 775 feet or 1,000 feet for purposes of enrichment.

Mr. PAGE: Take your time and figure it.

The WITNESS: I do not care to figure it in that way, for it took me a long time, I was four or five hours struggling with these figures and consulting different handbooks and memorandums to get that, and now to figure it out on some other basis——

Q. I am not asking you to figure it out on some other basis, I am merely asking you whether your final result is produced here by mixing 225 feet of oil and water gas mixure with 775 feet of coal gas or with a thousand feet of coal gas?

A. Well, I say that involves calculating out the candle powers of the oil and water gas and the coal gas and ascertaining whether it requires that amount to bring it above the 22 candles; it is the only method we have, and it involves there—as it has water gas in it and oil gas and coal gas, it involves quite an amount of figuring.

4909 Q. I know, but you certainly must have known what the total mixture was or else you could not have told how much enrichment you needed to bring it up to the required candle power, must you not?

A. I did, but I have not kept the figures on this book. I had separate papers on which I figured it out.

Q. Have you the memorandum in that book so far as you can give any details?

A. I have only a memorandum of the results. There is a large amount of figuring to be done outside of what is in the books.

Q. Have you any objection to my seeing those figures to which your attention has just been called, to see whether I could get anything out of it?

A. No. (Handing book.)

Q. Are those the figures there?

The MASTER: That does not convey much to the record.

Mr. MATHEWSON: I know it does not. I am thinking of putting it on the record, if necessary.

The WITNESS: These are results which have been corrected and twisted in such a shape that I cannot tell. I would have to go to work, Mr. Mathewson, and figure over quite a little to make out that the mixture of gas, oil, coal and waer gases, which would go fairly above a 22 candle power gas, to find out whether that is 225 on a thousand or 225 of the thousand. I do not think it is clear there, it is not clear to my mind which way I have got it.

Q. Can you not tell at once by taking the candle power of the mixture and the candle power of the coal gas?

A. No, you cannot tell at once. It is quite a—you would have to consult——

Q. You stated that the candle powr of pure oil gas produced as you have indicated would be sixty candles?

A. Yes, sir.

4910 Q. Can you tell the candle power of the entire 225 feet taken as a whole?

A. No, because the candle power of theoil gas is a shifting figure. As you put the water gas in it you increase the candle power up to a

certain amount and after awhile you decrease it by putting in further water gas.

Q. But you must have taken that all into consideration?

A. I did, as I say, I have not the figures here and cannot carry them in my head.

Q. How can you tell how many feet it would require to enrich unless you knew the candle power of the 225 feet?

A. As I say, I had to calculate all those matters out in detail before I commenced to figure on the cost.

Q. And you have not any details here from which we can check your figures?

A. No, I cannot give you those until I figure them out and it would take——

Mr. MATHEWSON: I would like to have this marked for identification, and will you give us a copy of that data just as it is there? And perhaps we can figure something out of it.

Page marked Complainant's Exhibit 258 for identification.

Q. Your specialty has been the manufacture of this very rich oil gas or oil and water gas, has it not?

A. Yes.

Q. And yet you cannot give us here even the candle power of that 225 feet which you used to enrich the coal gas, is that right now?

A. Well, now, there are several elements entering into consideration——

Q. I know, but can you?

A. No, I cannot, but——

Q. And you cannot tell whether the 225 feet was used to
4911 enrich 775 feet of coal gas or one thousand feet of coal gas, can you?

A. Not without going into a detailed calculation of it.

Q. Do you include any superintendence in the cost of the 225 feet?

A. Well, the only special feature I have in regard to the oil gas produced is the 2 cents per thousand for repairs and I calculated the same superintendence, superintendence at 50 cents, which is excessive, would cover that portion of the oil gas, yes.

Q. How could that be, if the oil and water gas were manufactured in New York and the coal gas or most of it was manufactured in Astoria as you have suggested?

A. Well, there are $50,000, I think that would divide a man up so that he could cross the river.

Q. $50,000 have you allowed solely for superintendence?

A. Yes.

Q. Does not the $50,000 include anything else except the superintendent's salary?

A. The superintendent and his aids. It is the superintendence, including not only the general but the different assistants. I think I stated before this morning that that was quite a large figure.

Q. You have allowed for repairs to apparatus how much?

A. Apparatus and buildings 4½ cents.

Q. And you said that that was the experience of the company this past year, was that right?

A. No, I said it was a little more than they had charged up in their books.

Q. Is it not true that the cost of maintenance in a coal gas plant is substantially greater than that of a water gas plant in the way of repairs?

A. Yes, it is somewhat greater on the apparatus. The buildings would not be anything different of any account, only slightly.

Q. Did you take into account the fact that the repairs and replacements of the Consolidated Gas Company for the year 1905
4912 were abnormally small and very much less than similar expenditures for the average of the past twenty years, or didn't you?

A. I saw that——

Q. Did you take that into account in your computation?

A. I don't remember that I looked at the back years on this particular point, but I thought the figure was a large one anyhow.

Q. In comparing coke at $4.00, did you take the short ton and compare it with what the company paid for anthracite which was $4.23, in your testimony?

A. I don't remember what I said about that. I called attention——

Q. You only said it just before luncheon. Don't you remember that you did say that the company appeared to pay $4.23 for anthracite?

A. I think that was the price I mentioned.

Q. Don't you know that was a long ton and not a short ton, and therefore that the comparison was not exact?

A. Well, the tons are mentioned there indifferently, without stating whether they are long or short.

Q. You have not read the testimony, which states that the long ton is used constantly in the computations of the company, have you?

A. No, I took it as a short ton.

Q. Is it not customary to deal with coal by the long ton in your experience?

A. No, everybody that I have talked with on the subject will say a short ton in figures.

Q. If the anthracite is measured by the long ton and the coke by a short ton, a comparison would not be fair, would it, without taking into consideration the difference?

A. I took it that both of those were on the basis of the short ton.

Q. But I call your attention to the fact that the coal is a long ton and that would not make a fair comparison, would it, without taking into consideration that fact?

A. No. And also a——

4913 Q. Well, "no" is the answer. That is all the question I asked you. The coke you say could be used for the production of water gas and would be as good as anthracite, pound for pound or substantially so. Then it would be your view that the company had been reducing its profits by using anthracite at a higher price instead of coke at a cheaper price, would it not?

A. Yes, that is it exactly.

Q. You have given the cost of fuel for water gas manufacture at 2½ cents per thousand in your mixed computation, dealing with some Central Union comparisons, figuring with coal or coke at $4.20 per ton. Now, that would mean, would it not, only 13.37 pounds per thousand?

A. What figure do you refer to there?

Q. I am speaking about your water gas production which you made up in a subsequent statement here in a comparison with the Central Union coke or coal at $4.20 per ton, 2.5 cents per thousand?

A. Yes.

Q. Now, if you take coal or coke at $4.20 per ton and compute that to be 2½ cents per thousand that means, does it not, only 13.37 pounds of fuel for each thousand feet of gas?

A. Are you calculating a long ton or short ton, which do you use?

Q. Well, which did you use?

A. I used a short ton throughout.

Q. Very good, take a short ton. For a short ton it would be a little smaller?

A. Well, it would come to 4.62.

Q. It would amount to what, how much in pounds?

A. Well, you turn it around. What was the amount then?

Q. The question is whether it is not true that coal or coke at $4.20 per ton, figured at 2½ cents per thousand means 13.37 pounds of fuel for each thousand feet of gas produced on the long ton and on the short ton whether it does not mean only 11.9 pounds
4914 of fuel per thousand feet of gas?

A. Yes, I have evidently taken it on the thousand pounds. There is an error there.

Q. In other words, it is simply impossible to assume that 11.9 pounds of fuel produces a thousand feet of gas, isn't it?

A. Well, I have taken it at 22 pounds to the thousand feet, but in the calculation, in the carrying out, it was erroneous. The coal and coke is stated at 4.20 a ton, at 22 pounds to the thousand.

Q. In other words, let us put it in in another way. Did not every one of the Massachusetts companies that you mentioned before luncheon require 30 pounds or more of fuel to generate each thousand feet of gas?

A. Well, I stated over 30 pounds.

Q. And if you compute on that basis, instead of the coal and coke amounting to 2.5 cents per thousand, would it not, on a basis of 30 pounds, even, amount to more than 6 cents per thousand for fuel instead of 2.5 cents?

A. Well, in this case the gas is so much higher quality that they do not use—the higher quality you get the less fuel you have to use per thousand. It takes a less proportion of water gas and larger proportion of oil. I do not think that is out of the way, for I have used 28 pounds as I stated, I have been down as low as 28 pounds of coal to a thousand in Danbury, only running half a day.

Q. Do you mean to advance the proposition then that 11.9 pounds of fuel will produce a thousand feet of gas or generate it?

A. No, I say it is 22 pounds.

Q. Then instead of being 2.5 cents it should be on the basis of 22 pounds how much?

A. A short ton, 4.62.

Q. Instead of 2.5?

A. Yes. If the figure is carried out.

4915 Q. Have you got any allowance for boiler coal in your cost of production? You have only mentioned what was used under the generators?

A. No, I omitted the boiler coal.

Q. Now, you use from 12 to 15 pounds of boiler coal don't you per thousand?

A. No.

Q. How much?

A. It depends upon the scale, all the way from six or eight pounds to twenty pounds according to the scale of operation.

Q. Don't you know that where you use coke instead of anthracite coal that the capacity of the machine is much less, say, sixteen to twenty?

A. The capacity of the machine is less. I so stated. That is, that you had to run slower.

Q. Now, I understand you to say that in this computation you have produced or assumed to produce a gas at 22 candle power at the works?

A. 23.1.

Q. In your Central Union computation you say you took one-half coal gas at sixteen candles and one-half water gas at twenty-eight candles and the average is exactly twenty-two, is it not?

A. Well, that is Central Union, but I have allowed here a larger amount of oil than at the Central Union, five and one-half gallons in place of 5.05.

Q. Did you not allow five and one-half at Central Union?

A. No, 5.05 is the amount which the Central Union used.

Q. In comparing with the Central Union so far as you did compare, taking up that second computation, you got an average of exactly 22 candle power at the works for coal gas at sixteen candles, half coal gas at sixteen candles and half water gas at twenty-eight candle power?

A. No, that would be——

Q. Exactly twenty-two, would it not?

A. Twenty-two candles, yes, sir.

Q. You did not make any allowance for the candle power
4916 which must be maintained above 22 candles in the mains at least a mile from the works and maintained at such a margin that never in any instance would the candle power fall below twenty to twenty-two candles a mile from the works?

A. I intended to make an allowance of twenty-three candles at the works, that is true.

Q. But you overlooked that in your final computation, did you not?

A. By raising the candle power of the coal gas I thought it would bring it to above twenty-two; it brings it to twenty-two.

Q. Did you make any allowance in taking your Central Union figures for the fact that the Central Union statement from which you took those figures covered only four months of the twenty-two candle power rate and eight of twenty candle power?

A. Well, in calculating their figures out——

Q. Did you make an allowance for that?

A. Yes—I made the calculation here which I stated this morning of 23.1 candles.

Q. Central Union?

A. Yes, sir, on the whole. I took 670,000,000 of coal gas at 14 candles and 925,000,000 — at twenty-five ¼ candles.

Q. But you stated in your direct examination that you mixed one-half coal gas at 16 candles with one-half water gas at 28 candles?

A. That was the change I proposed. This Central Union figure is based on 925,000,000 of water gas and 670,000,000 of coal gas, just as they actually make.

Q. Then that is not the computation which you have given us on the record this morning, is it?

A. No, that is simply to ascertain the quality of the gas.

Q. I am talking about the computation which you placed on the record this morning. You did take half coal gas at 16 candles and half water gas at 28 candles?

4917 A. I intended to make a computation of half coal gas and half water gas, that is about the same as the Central Union, it is not exactly, it is more coal gas and less water gas.

Q. Where would you get your 16 candles out of coal gas when it only yields about 14 candles?

A. The idea — to restrict the use of coal gas to a lower point.

Q. I know, but where do you get your 16 candles in your coal gas when you have stated it only makes about 14 on the average?

A. If you restrict the yield on the average somewhat you can get 16 candles.

Q. You can get less gas per ton of coal?

A. Yes.

Q. Then you would have to have more tons of coal proportionately to produce that amount of gas, would you not?

A. Yes.

Q. But you did not use a[illegible]ore tons of coal in your computation per thousand of gas, did you

A. I took the coal gas as the previous computation——

Q. In other words, in getting the cost of the coal gas that you mixed with the water gas, you took the computation concerning which I previously examined you?

A. Yes.

Q. And you did not take any greater number of tons of coal to get this coal gas per thousand feet that you did in your first computation, did you?

A. No, I omitted to add for the enriching or for the 16 candle power coal gas, that is true.

Q. And also the cost of your coal gas in this Central Union comparison, contains the same errors as to value of residuals and so forth,

which the computation in the previous case incorporated, does it not?

A. Well, no, it——

Q. Does it not? Did you not take exactly the same figure, starting with fuel and labor, less residuals, 6.5 cents? Was not that the first item in the production of your coal gas?

4918 A. I took the net cost of the coal gas of the Central Union or very close to it, the Central Union item for net cost was 6.64 cents.

Q. Did you not say coal gas as before?

A. I think I did. I might say substantially net as before, or the same as Central Union. I do not see any essential difference, a small fraction of a cent.

Q. I want to know whether the figures you took for the labor and material, 6½ cents in this Central Union comparison, was taken from the Central Union statement or whether it is, as you have stated, the same figures which you employed in your previous computation, which you pointed out were erroneous in some particulars?

A. It is neither. It is midway between; it is a compromise. That is, this Central Union figure was 6.64 and my previous computation was 6.46, and this is 6.50.

Q. Then your total Central Union ideal computation, as I will call it, producing a certain result, you proceeded to compare with the cost of the gas to the Consolidated Gas Company for the year 1905. Did you observe that the cost to the Consolidated Company covered the calendar year 1905 and therefore six months of the twenty-two candle power requirement, while the Central Union figures only covered four months of the twenty-two candle power requirement and two-thirds of the twenty candle?

A. Yes, I had it down for a difference in oil for that reason of .6 of a cent.

Q. Did you also take into consideration the testimony of the Central Union officers that they did not maintain in The Bronx during the first eight months of this period even the twenty candle power required by law?

Mr. PAGE: I do not think they stated that. I have just
4919 read it, so if Mr. Mathewson is to testify, I would prefer he would read from the testimony on the record.

Mr. MATHEWSON: It has been spread upon the record.

Mr. PAGE: I know, you have spread it several times.

Mr. MATHEWSON: It has been read verbatim.

Mr. PAGE: They said they tested it at the works and not farther away and that they maintained sufficient candle power at the works——

Mr. MATHEWSON: And they were asked if it did not mean something less than that somewhere else, and they said it did.

The WITNESS: If it gets richer in the pipes like in the case we had the other day——

Q. Perhaps it does. It must have, if they met the law. Well, I will ask you if you took into consideration the fact moreover that the Central Union Company did not maintain a mile from the works

even the twenty candle power standard for the first eight months of the year ending October 31st, 1905.

A. I say I took into consideration about the candle power——

Q. I know you said you took into consideration one thing, but I ask you if you took into consideration this question?

A. No, I do not think it was so, for the contract states they were to maintain the legal standard.

Q. What contract? You mean the statute?

A. No, the contract they make for selling gas to other companies.

Mr. PAGE: To the Consolidated.

Q. It appears in evidence that gas was delivered solely to lamp posts up there, so that the amount which you found was de-
4920 livered by the Central Union to the Consolidated or for account of the Consolidated was extremely small, was it not, or did you not observe that?

A. Yes, I noticed it was a small amount.

Q. And you observed it was delivered solely to public lamps?

A. No, I did not notice that. However, I added .6 of a cent to the computation on account of the——

Q. What was the basis of your addition of .6 of a cent, how did you figure that out?

A. In order to make the difference of oil at higher candle power, that is, I took it to be a reasonable addition to bring it on par with——

Q. Can you explain any more in detail your computation? Well, I will not press it, if you haven't it at hand. Did you not say that the .6 which you allowed this morning was for a correction for the price of oil and not for any additional enrichment?

A. I believe so.

Q. Now, which is right, your present statement that it was for additional enrichment, or your statement this morning that it was an allowance for the difference in the price of oil?

A. I think it would cover both, for .6 of a cent is a large sum, based on your output. It is $600,000——

Q. You stated this morning it was to allow for the difference in the price of oil. Was that the correct statement, or was it to allow for something else?

A. I don't remember making that statement this morning, for it was not in the other allowance, but I made it this afternoon. I see it is the second calculation here as being as it is, an amount of $60,000. I should think it would cover the difference in oil and light—as a matter of fact, I calculated the Central Union at 23.1 candles, but I see that I omitted to account for the difference between 14 candles and 16 candles.

4921 Q. That would add somewhat to the cost, would it not?

A. Yes, sir.

Q. Now, let us take the comparison with the New Amsterdam. You figured the New Amsterdam or took it from the Exhibit as 29.01 and you compared it with the Consolidated water gas station which you found 31.05. Did you take into consideration the fact that the Consolidated 31.05 was for the calendar year and covered six months

of the 20 candle power standard while the New Amsterdam exhibit was for the year ending October 31st, 1905, and covered only four months of twenty-two candle power and eight months of the twenty candle power?

A. Yes, but I observe the candle power of the New Amsterdam in the tests that I was looking over by the inspectors was held up higher than the Consolidated as a general thing.

Q. Well, did you make any allowance for the additional period of twenty-two candle power which the Consolidated Exhibit covered, as compared with the New Amsterdam?

A. I think the New Amsterdam average is 23.73. I did not see the necessity of doing that.

Q. I am talking about the Consolidated. Did you make any allowance from the fact that their exhibit covered twenty-two candle power exceeding the twenty-two candle power period of the New Amsterdam?

A. They did not need it.

Q. Well, did you make it?

A. No, sir; the New Amsterdam is 23.73.

Q. You did not make any allowance for the fact that during two months of the period covered by the Consolidated there was a difference in the cost of oil by reason of the use of 34 gravity instead of 28 beginning with November 1st, 1905?

A. No, sir. As stated I did not take any stock in that gravity or difference.

4922 Q. Now, you stated that the 42d Street plant of the Consolidated showed a cost at the holder for the year 1905 of 34.87 cents and compared that with the water gas stations of the Consolidated, 31.05 cents, and you found a difference in the 42d Street cost, computed upon the output, of $48,454 and you capitalized that at five per cent. Now, will you tell me how much of the $48,454 would amount to per thousand feet of sales on the total Consolidated output of 13,283,000,000, about?

A. On the Consolidated's manufacture it would amount to about .48 of a cent, I think. Of course a larger divisor makes a smaller result.

Q. On the total sales of 13,283,000,000, which is what we are dealing with. It would be about .35 of one cent, would it not, roughly?

A. .37 I make it.

Q. Well, you then compared the New Amsterdam cost of 29.01 for the nominal year with the Consolidated Water Gas Stations and found a difference of $161,700 or thereabouts. If that be divided by the total sales that would amount to a little over one cent on all sales of the Consolidated, would it not?

A. A cent and a quarter about. That does not alter the sum they might have lost, though.

Q. You understand, do you not, that the Central Union plant is a modern, comparatively new, up-to-date plant for a mixture of water and coal gas virtually under a single roof and all the product sent out from a single plant.

A. I believe so.

Q. That, other things being equal, would tend to some economies impossible in widely scattered plants?

A. No, I think my impression is that it is a good thing to divide up these very large stations because you get some competition of management.

Q. Now Professor Bemis, in his testimony, says that putting the production into one large station like Astoria would cheapen the production. You think it would make it more expensive,
4923 do you, and that it would be advisable to have smaller plants instead of one large plant?

A. No, I think for some reasons it would be cheaper, but the competition in management of plants where they are very large is an incentive to getting a little better result.

Q. If you mix coal and water gas it is better, is it not, to have them immediately contiguous or produced in the same plant?

A. Yes, certainly.

Q. So that that element existing in the Central Union Works, that would be an element favorable to a reduction in cost where the water gas and coal gas plants are really under a single roof, would it not?

A. Not so much in cost as the certainty that a mixture could be made. I think they will have to devise some very efficient way of securing uniform gas from those two separated works, for I have seen it tried and it requires some management beside throwing the two gases together.

Q. And is there not a greater variation of candle-power necessarily to be provided for when coal and water gas are made at different plants, miles apart, and distributed in the mains as compared with the making of coal and water gas at a single station, as you might say, and mingling it at that point?

A. Yes, they should be mingled before going into the gas holders at all.

Q. If possible?

A. Yes. That can be done in this case.

Q. Now the coke in the case of a water and coal gas plant contiguous goes direct from the retorts to the generato. house does it not?

A. Yes.

Q. And that saves cartage and breakage of coke, does it not?

A. It does.

Q. Did you know that the New Amsterdam plant was a new and up-to-date plant in every particuar for water gas?

A. I inferred, from its having better results, that it was
4924 either up-to-date or better managed.

Q. Well, you know that it is a new and up-to-date plant?

A. I know that it is newer, yes.

Q. And you know that the gas of the New Amsterdam Company is produced at that single plant, don't you, or is not that your information?

A. I believe so. I have not absolutely definite information on that.

Q. Now, in reference to your 42nd Street examination or the ex-

amination of the 42nd Street plant, you first went down about December 2nd, about two o'clock, did you not? And left about four?

A. I left before dark.

Q. Well, you went about two and left about four?

A. Yes, that was preliminary.

Q. And did you go more than one other day?

A. Two other days.

Q. Well, you went the next day, didn't you?

A. I think I went three days. In the first place to——

Q. Did you go more than two days?

A. Yes, I think I went three days.

Q. Sure about that?

A. Yes.

Q. Did you go with the same young man as a guide each time?

A. No, I went alone first.

Q. That was on December 3d, from two to four. Well, you went December 4th, the next day, and left about four o'clock that day?

A. I continued until after dark. I left about dark or a little before dark.

Q. Now, do I understand that in making your oil gas it makes very little difference what quality of oil you use?

A. I think there is a difference in oil, but not as regards the degree of the mixture or the average degree of the mixture. I do not see any particular difference there.

Q. You mean that a low gravity oil at 28 will do just as
4925 well as 34?

A. It should do with proper apparatus and management.

Q. Then I assume you buy as cheap oil as you can, don't you, if one does just as well as the other?

A. That is the way I should do.

Q. Is that the way you do in Danbury?

A. Just as cheap as we can get it. The trouble we can't get it——

Q. The 28 gravity oil?

A. Sometimes, and sometimes it runs 34. It did run up to 34 without any request at all, and I did not notice any particular advantage in it, however.

Q. But if one oil is cheaper than another and the lower gravity oil is just as good, you naturally buy the cheaper oil, don't you, when you can get it, if there is any difference in the price at all?

A. I only learned of this new theory within the last few months.

Q. I understand, but my question is not as to that. I say you use where you can get 28 degree oil cheaper than 34, you get the 28 degree, don't you?

A. Yes, certainly, but we did not make any provisions about the exact gravity in the oil. It was to be an oil free from very heavy matter, that is all.

Q. What do I understand in Danbury you charge for the rich gas without reducing it to the 17.6 candle standard, how much does it amount to per thousand feet?

A. They have reduced it now until the highest price is $2.65.

Q. That is without reducing it to the 17.6 candle?

A. Yes, that is for 44 candles tested as we do test it. The price has been recently reduced but I am glad to say the quality is to be kept where it was.

Q. Is it not true that tar produced by different plants contains a larger or smaller proportion of water in the mixture or emulsion, if you call it so?

4926 A. It contains a little—formerly we used to get a great deal of water mixed and now they have a provision for filtering it and getting the water out.

Q. Do you know whether there is any different method for extracting the tar in the New Amsterdam works than there is at the Consolidated?

A. There must be, there seems to be some better way.

Q. Well, do you know how much the Consolidated residual differs as to pure tar from the New Amsterdam?

A. I do not—I do not from inspection of the tars; but I suppose all gas companies try to free the tar from water now so as to burn it.

Q. Would it make any difference in your opinion as to the amount of tar, if the result in candle power compared favorably per gallon of oil?

A. No, if they get as good a quality of gas I should not make any difference except that they ought to make more of that quality.

Q. Referring to this Danbury Company to which you have again referred to-day, I want to call your attention to your previous testimony as to the depth of the main. Mr. Charles H. Merritt is the president of the Danbury Company, is he not?

A. Yes.

Q. Now, will you look at this letter from Mr. Merritt (handing paper) and see whether he does not state that it is the custom of that company to have 3½ feet of dirt over the top of the pipe?

A. He may state it is the custom, but I don't think he ever looked at 10 feet of the main pipe.

Q. Well, that letter appears to be from him and he appears so to state, does he not?

A. Well, as a matter of fact——

Q. The question is, whether that appears to be a letter from Mr. Merritt, and whether he does so state in the letter?

4927 Mr. PAGE: What is stated in the letter I suppose appears from the letter?

A. Yes. Well, I differ from that.

Q. And does he not further state in this letter that the question was referred to the superintendent of the Danbury Company and that the information comes from the superintendent also?

A. I don't think the superintendent ever saw anything of the kind.

Mr. MATHEWSON: Well, I offer this letter in evidence.

Mr. PAGE: I object to that. If Mr. Merritt is to testify, he should appear here and be subjected to cross-examination.

Mr. MATHEWSON: No, you have letters here from all sorts and descriptions of people.

Mr. PAGE: I have not produced the letter and I object to the ad-

mission of this. It is not competent and is purely hearsay, and if Mr. Merritt is to testify we should have an opportunity to cross-examine him.

The MASTER: I will exclude it.

MR. MATHEWSON: Exception.

Q. Does the president state, as I have stated in my question, as to the depth of the dirt over the pipes in Danbury?

MR. PAGE: That is objected to, as having been already excluded.

MR. MATHEWSON: I am not offering the letter again, but I am asking whether he so states.

MR. PAGE: I object to it as being incompetent. Mr. Mathewson can read it and see whether it so states just as well as asking
4928 the witness. It does not require an expert on handwriting to read a typewritten letter.

The MASTER: I will exclude it.

MR. MATHEWSON: I will take the answer to the question. Exception.

The WITNESS: It so states but I do not think Mr. Merritt knows anything about it. I never saw him along the line of pipe and never saw him look at a pipe.

Q. Did you ever know the Superintendent to go over the pipes?

A. I know he looked at them all the time they were laying them, but——

Q. Does not Mr. Merritt say, "Following your inquiry of me as to the depth we laid our gas mains, to fully make sure of the proper answer the question was referred to our superintendent, who informed me the custom of this company is to have three and one-half feet of dirt over the top of the pipe.

MR. PAGE: Same objection.

The MASTER: Same ruling.

Exception.

Q. Have I quoted correctly?

A. Yes, I know, but——

Q. Have I quoted that correctly?

A. You may have quoted it correctly, but——

Q. Well, have I quoted it correctly. Will you take the letter and let the question be read, if you have any doubt of it.

A. Yes, he so states, but——

Q. Now, you said something about Faribault, and that the pipes out there, as I recollect, were about two feet deep; at any rate, they had about two feet of covering; was that right?

A. No, sir. I said they were buried down an uneven depth, and I ordered them to be laid shallower. They were trying to lay them below the frost line, and I found no use in that; in fact,
4929 raised them somewhat, on account of the inconvenience of having to get down to them.

Q. Do you know how deep they are actually laid?

A. Some of the old pipes may lay deep. I did not speak in regard to the pipes laid before I went there.

Q. Are there any pipes laid three feet under ground in Faribault?

A. Yes. My directions were not to pay any attention to——

Q. I have a letter here which appears to be from the Secretary of the Faribault Gas & Electric Company, on the paper of that company, isn't it? That is what it appears to be, is it not?

Mr. PAGE: I object to that.

Mr. BURR: I join in the objection.

Objection sustained. Exception.

A. Yes.

Q. Now, does not the secretary of that company say in this letter that "The writer knows of no instance where the mains are less than three feet underground?

Same objection. Same ruling. Exception.

A. Yes.

Mr. MATHEWSON: Have I not a right, Mr. Master, in an examination where the witness himself has referred to the depth of mains underground to call his attention to a communication from the company itself, and to ask him whether that modifies his views at all on the subject?

The MASTER: Yes, but if the letter is objected to as incompetent——

Mr. MATHEWSON: I am not offering the letter. I am merely asking the witness to identify it, and whether it is a letter from the company.

4930 The MASTER: I understand, but you cannot do indirectly what you cannot do directly, and get the contents of an incompetent letter on the record by cross-examining the witness.

Redirect-examination by Mr. PAGE:

Q. Mr. Edgerton, do you know of your own personal knowledge that pipes are laid at Faribault at less than three feet?

A. In plenty of instances. I have directed that the idea of laying pipes below the frost line be stopped, and all the pipes that I saw laid there were laid according to a given dip; sometimes they might dip; they were a depth of two feet to two and one-half feet, but it was only on account of getting grip, and furthermore, I showed the fact that we had less freezing or less services frozen on shallow pipes than the old type pipes of any one case.

Q. I think you have testified to all that. I asked merely whether you knew of your own personal knowledge that such pipes had been laid?

A. Yes, and my instructions were to lay no others, and Mr. Cowperthwait had no business to lay a pipe at any other depth.

Q. What Mr. Cowperthwait? Were they in Faribault?

A. I had charge of Faribault and directed everything that was to be done there, and I gave him specific instructions to pay no more attention to that rigamarole about deep pipes.

Q. Do you know of your own personal knowledge that the pipes at Danbury are laid at less than three feet deep?

A. I know of three miles of pipe that I laid myself that there is not a bit of it that lays over two feet below the surface of the ground, and in many other cases I have seen—walking down Main Street, I saw a pipe right opposite Mr. Merritt's house, the man that wrote that letter, right opposite his house, that was not over 2½
4931 feet deep. I saw the men taking up what was an abandoned main, also of 3-inch pipe, which did not lay more than two feet deep, and I have looked on pipes at Danbury at dozens of times which were not three feet deep and plenty of them I have seen at two feet deep. I state that positively.

Q. In relation to the question that was asked you, whether you took the station cost of the Consolidated companies for the year 1905, and you took the station cost of the New Amsterdam and Central Union for the nominal year ending October 31st, 1905, I call your attention to Exhibit 93, which purports to be a summary of operations for the nominal year ending October 31st, 1905, of the Consolidated Gas Company, and Exhibit 94, which is a summary of the operations for the calendar year, and call your attention to the station cost in Exhibit 93, and ask you to state what it is?

A. 32.68.

Q. And for Exhibit 94, what is the station cost given?

A. 32.42.

By Mr. MATHEWSON:

Q. Gas made, in each case, isn't it?

A. Gas made, yes, sir.

By Mr. PAGE:

Q. Therefore, the year 1905 cost less than the nominal year ending October 31st, 1905, according to these two exhibits, did it?

A. Yes, sir.

Q. Now, in arriving at your result of the coal gas made according to these theories, if you increase your tons from short tons to long tons would you also thereby increase the amount of gas that you had obtained?

A. Certainly.

Q. That is, the 10,600 cubic feet of gas per ton was esti-
4932 mated on a short ton, was it?

A. Yes, sir; 5.2 cubic feet to the pound.

Q. And a ton of 2,240 pounds would produce how much more gas?

A. 11,648; a difference of about 1,000 feet.

Q. That is the 14 candle power gas?

A. Yes, sir.

Q. So that would increase proportionately if you took a long ton and would not change the result?

A. No, sir; it would increase the proportion of coke and breeze, and also the other figures where I figured on a 2,000-pound ton; that is, it would increase the yield on the same ratio.

Q. It would increase the yield on the same ratio?

A. Yes, sir.

Q. And except in the item of coal handling it would not change your other items of expense, would it?

A. No, there does not occur to me any change that would be brought about by that changing of the ton.

Q. When you made this estimate, did you make it with the idea that it was to be applied to the existing plants of the Consolidated, or was — to be a modern up-to-date plant placed in the most convenient manner?

A. Why, I assumed that this would be a modern plant; of course it was based on that.

Q. You did not expect to save a part of the present works and modify that value, did you?

A. No, sir.

Q. Well, have you any desire or wish to modify your testimony that a modern plant could produce 22 candle power gas at twenty-four cents or less?

A. No, I think that I have made, simply in making this without having access to some of the information I desired, I have made a slight discrepancy here, and I think still that, by a careful
4933 examination, that in time to ascertain all the facts involved that gas could be made at twenty-four cents. I see that correcting my estimate to the Central Union figure it amounts now to 26.30 cents. I made this calculation on Sunday and did not have access to any large amount of information that I required. I had to be ready to put it in to-day and worked on it last night until 12 o'clock. This morning I tried to get some additional information, but I could not get at it.

Q. Will you state how these bottles of oil were marked that you brought and delivered to Professor Sherman?

A. They were brought to me from——

Q. The bottles of oil or the samples of oil, I mean?

A. I marked one "Standard Fuel Oil," that I got in South Norwalk; and the January 6th oil was from Danbury, and the November 24th oil was from a tank delivering to the Mutual on 21st Street —they said they were going after they delivered to the Mutual——

By Mr. MATHEWSON:

Q. Were there just three samples of this oil?

A. There were a number of other samples, but there were none of any account, there were some of the old Danbury samples brought down, extending back to 1904.

Q. Were they marked in any way?

A. They were all marked.

Mr. KIRBY: These are the only three we had analyzed. If you want the others you may have them.

Q. Did you draw this sample at Norwalk yourself?

A. Yes, sir; out of the Standard oil tank.

Q. Who was present when you did it?

A. The driver and the superintendent of the electric com-
4934 pany, Mr. Winchester; I think he was there; and the engi-
neer was there, I am certain; I am not so certain about Winchester; he came in shortly afterwards, I think.

Q. What tanks, if there is more than one tank there, did you draw it from?

A. I drew it from the tank coming from the Standard Oil Company and feeding into and delivering oil in a certain tank of the electric light company.

Q. Did you draw it from the tank of the oil company or the tank of the electric company?

A. The tank of the Standard Oil Company; and I have got a photograph of it if you want it.

Q. What sort of a receptacle was it in?

A. A long tank drawn by two horses, quite a large-sized tank.

Q. No, I mean the sample?

A. The sample was in a glass bottle.

Q. Did you draw the sample at Danbury yourself?

A. No, I have drawn a number of them; those samples, I say, extending back over——

Q. Well, did you draw this particular sample yourself at Danbury?

A. I could not tell you that. Many of those samples I drew myself and some of these other——

Q. Well, you cannot swear that this particular sample from Danbury you drew yourself?

A. No, I cannot swear to that.

Q. Then you cannot swear as to the day on which it was drawn except as somebody told you, can you?

A. No. It is labeled. I will look and see if it has my handwriting on that bottle.

Q. That would not mean that you drew it yourself, would it?

A. Yes, that would mean that I drew it myself out of the tank.

Q. What about the sample of the oil in New York; where
4935 did you draw that sample?

A. I did not draw that sample; that was given to me by a man, a reliable man, who told me he drew it right out of the tank from the barge, where they were pumping up from the barge.

Q. Where?

A. At the Mutual works.

Q. Where?

A. I think it is at the foot of 11th Street; somewhere on the East Side there.

Q. Where?

A. I think it is the foot of 11th Street, somewhere on the east side there.

Q. But you have no information except what is given you by this man who informed you, is that right?

A. That is all. He told me that was drawn right straight from——

Q. Who drew it? Who is the gentleman who drew this New York sample?

A. He is an acquaintance, a friend of mine.

Q. What is his name?

A. I do not care to tell that. It is not necessary to know that.

Q. Well, I am inclined to think it may be necessary. I ask you what his name was?

A. The sample was given to me by somebody on the barge. I have forgotten the name of the man.

Mr. MATHEWSON: Do you want to withdraw that if you do not want the name given, Mr. Kirby?

Mr. KIRBY: We may produce the man himself.

Q. Well, I will ask you again to give the name of the man who drew the sample, and take the ruling, or who gave the sample to you, and take the ruling of the Master if there is any objection to it.

The MASTER: You can answer, Mr. Edgerton.

Mr. PAGE: I object. If Mr. Edgerton has any objection
4936 to giving it, I will withdraw the sample and withdraw further testimony in regard to the sample.

The MASTER: That seems to dispose of it.

Q. Now, Mr. Edgerton, in reference to the long and short tons, those producing the coal gas in your assumed plant in New York would be bituminous coal?

A. Certainly.

Q. I asked you no question about bituminous coal. I asked you if you did not compare coke at $4.00 a ton, short tons, with anthracite at $4.23 per long ton; you understood that, didn't you?

A. Yes, I understood the anthracite price was $4.23 on the short ton.

Q. You understood I asked you nothing at all as to bituminous as comparing with long or short tons, and you stated it was a short ton; that is right, isn't it?

A. I figured on short tons throughout.

Q. Now, of course the more pounds of bituminous coal you take, the more gas they will produce; that is conceded, I suppose?

A. Yes.

Q. You estimate that your computation of labor, less residuals, in the first place amounted to about 6 cents, and after you had made the corrections for residuals, the balance amounted to something like 15 cents. You do not call that a slight discrepancy, do you?

A. Well, I do after correcting the errors that I made in my prices, yes.

Q. But, as a matter of fact, the long or short ton use would not affect any errors that you made of that character?

A. Not that, but it is affected by the fact that I made an error in the prices, in referring to the prices of material here, and the Central Union, and it made quite a large difference.

Q. Now, as you have been asked further about Faribault, I read

this from the letter which you have identified as a letter of
4937 the company, and ask you if that does not modify your statements as to the pipes in Faribault——

Objected to.

Q. (Reading:) "Our main feeders are in most instances from five to seven feet below the surface. In order to keep below the frost line in this part of the country it would be necessary to have pipe in no instance less than five feet. Such mains as we have at a depth of from three to three and one-half feet are in outlying districts, where the consumption is light, and are of wrought iron in every instance, so that we have experienced no difficulty with broken mains."

Now, I have quoted that correctly, haven't I?

Mr. PAGE: I object, as before.

Q. And I ask whether that does not modify your statements which you put on the record in your redirect-examination as to the depth of mains at Faribault?

Same objection. Same ruling. Exception.

A. No. I know better.

Q. And if they are three feet under ground it would indicate that they have not followed your advice at Faribault, wouldn't it?

A. They did follow my advice. I saw the mains laid there.

Q. When?

A. In 1901, 1902, 1903. I have not been there since 1903.

Q. You don't know whether they have been taken up and relaid at a greater depth or not since, do you?

A. I know that I should have heard of it.

Q. Well, except in that way, you do not know, do you?

A. Well, all communications from Faribault about management are referred to me, and have been, and up to a very recent
4938 period; and I will say this, that this young man does not know about Faribault mains to the extent I do, for he is secretary——

Mr. MATHEWSON: I move to strike out the witness' answer as not responsive.

Motion granted. Exception.

Q. Now, I ask again, you have no personal knowledge, have you, as to what mains have been taken up and relaid in Faribault within the last four years, or three years, since you were there, in 1902 or 1903?

A. Since I was there in 1903, I have not—1903? Yes. I have not paid personal attention to it, but I would know if there were any mains——

Mr. MATHEWSON: I move to strike out "But I would know if there were any mains."

Motion granted. Exception.

By Mr. PAGE:

Q. Do you know as a matter of fact that this oil marked "January 6th, 1905," was the oil that was being used at that time by the company at Danbury?

A. Yes, sir.

Mr. MATHEWSON: Objected to. Of course the witness does not know if he did not draw it and was not present when it was drawn and was not present when it was used. The man who gave it to him may have got it somewhere else. If we had been present when it was drawn I would not have the slightest objection; as it is, I must object.

The MASTER: I do not see how he can testify to that, if I remember his testimony rightly.

The WITNESS: This is not my tag.

4939 By Mr. MATHEWSON:

Q. Not your writing on the tag, is it?

A. No, it is one Mr. Cowperthwait put up.

By Mr. PAGE:

Q. Is it the custom of the Danbury company to take samples of the oil as each shipment comes in and keep them in some certain place?

Mr. MATHEWSON: That is objected to as immaterial.

Question allowed. Exception.

A. That is the custom.

Q. Did you take this bottle from the place where such oil is kept in the Danbury works?

Mr. MATHEWSON: Objected to as immaterial.

Question allowed. Exception.

A. I did not take the sample myself, no. I ordered it taken from my closet where I kept samples.

Q. Did you keep those samples yourself?

A. I kept them under my eye; they were right in the office where I did all my laboratory work, and they have, I suppose, one hundred bottles of those samples extending quite a number of years back, of oil, because I have been making it a subject of looking into oil with reference to the qualities of gas made from it for quite a number of years.

Q. You say you ordered it taken from that closet?

A. Yes, sir.

Q. Who gave it to you?

A. The son of the superintendent came up specially to bring those samples to me from Danbury, and no other person except myself or his father has access to the office that I know of where they are kept.

4940 By Mr. KIRBY:

Q. This oil marked "Standard Fuel Oil," November 20th, 1906, is the oil delivered to you by Dr. Sherman, is it not?

A. Yes.

Q. And the oil in bottle marked "January 6, 1905," was the sample of Danbury oil that you delivered to Dr. Sherman, is it not?

A. Yes.

Q. It is the sample of oil you testified to getting in Danbury?

A. Yes, I took that up there personally and we tested that first with a hydrometer, Beaumé, and I directed him to make as careful a fractionation as possible, in fifths.

HENRY CLAPP SHERMAN, a witness called on behalf of the State, being first duly sworn, testifies as follows:

Direct examination by Mr. KIRBY:

Q. I understand you are an analytical and consulting chemist?

A. Yes, sir.

Q. Are you upon the faculty of any university?

A. I am upon the faculty of Columbia University.

Q. What position do you hold there?

A. Adjunct Professor of Analytical Chemistry.

Q. Have you any scientific degree?

A. I have the degree of Bachelor of Sciences from the Maryland Agricultural College, Master of Arts from Columbia University, and Doctor of Philosophy from Columbia University.

Q. Did Mr. Edgerton, the gentleman who has just left the witness stand, deliver to you certain samples of oil under seal, being the oil, some of which is in this bottle marked "Standard Fuel Oil,
4941 November 20, 1906," and the other in the bottle marked "January 6, 1905"?

A. He did.

Q. And did you make certain tests of the oil as to its specific gravity?

A. I did.

Q. Did you fractionate that oil?

A. I did.

Q. Did you make chilling tests upon the two samples to ascertain the amount of solid matter therein or to show what such tests would indicate?

A. I did.

Q. Will you give the result of the test of the oil marked "Standard Fuel Oil, November 20, 1906," as to specific gravity, the same being reduced to a Beaumé scale?

Mr. MATHEWSON: Objected to as immaterial and irrelevant; the results of such an examination not being relevant to the issues here.

The MASTER: Well, I will take it.

Exception.

A. I have the result of the density determination by means of the hydrometer on the Beaumé scale, and the results of the specific gravity determined by means of the specific gravity bottle. The results by the hydrometer were 31.3 degrees Beaumé at 70 degrees Fahrenheit, corresponding to 30.3 degrees Beaumé at 60 degrees F. The specific gravity determined at 60 degrees F. by means of the specific gravity bottle was 0.8744.

Q. Did you fractionate this oil?
A. I did.
Q. And in how many fractions?
A. Into five fractions; the first, second, third and fourth fractions being distilled; the fifth fraction being the residual oil.
Q. And what was the result of such fractionation into these five fractions which you have spoken of, giving specific gravity
4942 by balance, by bottle and also reduction to Beaumé scale.
A. The specific gravity by the Westphal balance for the

First fraction	was	0.832
Second	"	"	0.870
Third	"	"	0.880
Fourth	"	"	0.8855
Fifth	"	"	0.899

The specific gravity determined by the specific gravity bottle was for the

First fraction	0.8321
Second "	0.8708
Third "	0.8807
Fourth "	0.8862
Fifth "	0.9007

Q. And reduction to the Beaumé scale gave what results?
A. The results shown by the specific gravity bottle reduced to the Beaumé scale gave for the:

First fraction	39.5
Second "	31.7
Third "	29.8
Fourth "	28.7
Fifth "	26.1

Q. That is, that this oil, which before fractionation in a Beaumé test of 30.3 was fractionated into five fractions in the manner you have stated, showed it to be made up of oils varying in specific gravity from 39.5 to 26.1, or to 26.1 for the specific gravity of that which was not distilled over?
A. For the gravity Beaumé corresponding to the specific gravity for that which is not distilled over.
Q. Now, did you apply a chilling test to this oil?
A. I did.
Q. To what temperature did you bring the oil?
4943 A. The oil was brought to a temperature between O, F. and minus 5 degrees F., and held at that temperature in the first test for one hour.
Q. And what was the result?
A. This sample marked "Standard Fuel Oil" showed no change in appearance, and on opening the burette in which the oil was contained during this exposure to the low temperature——
Q. Did it clog up the opening?

A. It did not clog the opening. At the opening of the burette the oil began to flow out at once.

Q. Which indicated to you what condition of the oil as respects paraffine or such other substance which might have been its base? Was much or none contained therein?

A. That there was none which we described at this temperature during exposure of one hour.

Q. Now, did you apply a similar test to the oil marked "January 6th, 1905"?

A. I did.

Q. What was the result of those tests?

Mr. MATHEWSON: Objected to. That is the one which the witness did not draw.

Objection sustained. Exception.

Mr. PAGE: We ask that this testimony be taken subject to our subsequently connecting it directly, and if we do not do so it may be stricken out.

Mr. MATHEWSON: It seems to me that that is not the way to produce testimony.

The MASTER: I think the best thing is to exclude it, and let it go at that. You can take it on that basis if you desire.

Mr. PAGE: I will take an exception.

The MASTER: It seems to me you have got to do so much connecting to make this testimony material anyway it is hardly worth while to go into it at length.

4944 Mr. KIRBY: We will put it in under the rule, Mr. Master.

Q. Did you test this oil for specific gravity?

A. I did.

Q. What was the result?

A. The result of the determination of the density by the Beaumé hydrometer was 34.5 degrees Beaumé at 70 degrees F., corresponding to 33.5 degrees Beaumé at 60 degrees F. The specific gravity determined by the specific gravity bottles at 60 degrees F. was 0.8572.

Q. And the fractionation showed what?

A. Showed for fractions, specific gravity, by the Westphal balance:

First fraction	.....	0.769;
Second "	.....	0.850;
Third "	.....	0.8695;
Fourth "	.....	0.882;
Fifth "	.....	0.905.

The specific gravity by the specific gravity bottle for:

First fraction	.....	0.7709;
Second "	.....	0.8514;
Third "	.....	0.8712;
Fourth "	.....	0.8833;
Fifth "	.....	0.9065.

Q. Which, being reduced to the Beaumé scale, gives what result?
A. Gives for the:

First fraction	53.4	degrees	Beaumé;
Second fraction	35.5	"	"
Third fraction	31.6	"	"
Fourth fraction	29.3	"	"
Fifth fraction	25.1	"	"

Q. It also indicates that this oil was made up of various
4945 gravities, and not all of one gravity of 33½ degrees Beaumé?
A. It does.
Q. Did you subject this oil to a chilling test?
A. I did.
Q. What was the test, and what did it show?
A. The test was made in the same manner as the test with the sample marked "Standard Fuel Oil," two burettes being exposed side by side for one hour at a temperature between 0 degrees F. and minus 5 degrees F. The two burettes were of the same form and of approximately equal diameter, and filled to the same depth in one case with the "Standard Fuel Oil," in the other with the sample marked "January 6th, 1905." On removing the burettes from the freezing mixture the sample marked "Standard Fuel Oil"——
Mr. MATHEWSON: Do you mean that?
The WITNESS: I understood the object of this question was to compare the results of these two oils. On removing the burettes from the freezing mixture the sample marked "Standard Fuel Oil" showed no change in appearance and ran out freely upon opening the burette. The sample marked "January 6th, 1905" showed no deposit, but was slightly turbid, and did not run out immediately upon opening the burette, but began to run in a few seconds, as the substance became warm by contact with the air of the room.
Q. Did you make a further test of these oils by chilling them and noting the result?
A. I made a second chilling test with these two samples of oil, using the same burettes, but with the burettes reversed, that is, with the sample marked "Standard Fuel Oil" placed in the burette previously used for the sample marked "January 6th, 1905," and *vice versa*.
4946 Q. What was the result of that?
A. The burettes were then exposed to a temperature of about two degrees below zero for two hours, at the end of which time the sample marked "Standard Fuel Oil" was not perceptibly changed in appearance, and ran out from the burette in about fifteen seconds when the latter was opened at the room temperature immediately after removing from the freezing mixture. The sample marked "January 6th, 1905," was turbid, and upon opening the burette under the same conditions, the oil required a few seconds before beginning to run, and about one hundred seconds to run out completely from the burette.

Cross-examination by Mr. MATHEWSON:

Q. What percentage of oil did you get from the different gravities from 39.5 down to 26.1 Beaumé, referring to "Standard Fuel Oil"?

A. The first fraction from the Standard Fuel Oil was one-fifth of the volume of the sample taken from the fractionation.

Q. 20 per cent.?

A. 20 per cent. by volume.

Q. Very good.

A. The second fraction was also 20 per cent by volume; the third fraction was also 20 per cent. by volume; the fourth fraction was also 20 per cent. by volume.

Q. And, of course, the fifth?

A. The fifth was the residue remaining in the flask. It was impossible to pour it out so fully as to measure 20 per cent.

Q. Were these tests 39.5 to 26.1 Beaumé of the five fractions reduced to sixty degrees temperature or taken at that temperature?

A. They were taken as nearly at 60 degrees F. as tests upon small volumes can be made.

Q. Well, what do you mean by that? Didn't you take the exact temperature?

A. The exact temperature was taken at 60 degrees and the
4947 tests are the specific gravities at 60 degrees F.

Q. But you separated this oil into five fractions, did you not?

A. I did.

Q. And then you took the specific gravity of each fraction?

A. I did.

Q. Isn't it necessary to know the temperature of each fraction at the time you test it in order to get the accurate result reduced to 60 degrees?

A. It is.

Q. Did you take the temperature of each fraction?

A. I did.

Q. And do you mean to say that each fraction tested just 60 degrees, or did it test some other degree at some other figure?

A. The tests were made at 60 degrees.

Q. So that there was no reduction?

A. There was no reduction.

Q. How did you know that the temperature was 60 degrees at the test? What test did you make to ascertain the temperature before taking the gravity of the five fractions?

A. The temperature was determined by means of thermometers. The temperature in the case of the determinations of the Westphal balance were taken by means of a thermometer, obtained with the balance, the whole apparatus having been tested and certified by George Westphal.

Q. What was the total material that you began with in reference to "Standard Fuel Oil"? Was it a full bottle?

A. The bottle was not completely full.

Q. How much of it have you used up?

A. I should say that the bottle contained about three times that amount.

Q. Three times what there is now in it?

A. Yes. The residue I should judge to be about one-third of the amount which was delivered.

4948 Q. What is the meaning of the tag, "Filter Before Testing," if you know?

A. Mr. Edgerton requested me to filter the oil before making the tests.

Q. Did you?

A. I did.

Q. You did not test the oil as it is in the exact shape in which it was delivered to you, then, did you?

A. The oil was filtered in the presence of Mr. Edgerton, so that the oil as finally delivered to me by Mr. Edgerton was in exactly the state in which I made the tests.

Q. Oh, yes, but this oil here does not represent the oil as it was originally brought by Mr. Edgerton, but it represents the oil after it had been filtered; is that it?

A. After it had been filtered.

Q. And this sample is after it had been filtered?

A. After it had been filtered.

Q. Was this a continuous single test reaching all your conclusions by a single sitting, so to speak?

A. Do you refer to all the results as I have given.

Q. I refer to the "Standard Fuel Oil."

A. To all of the results which I have given of the Standard Fuel Oil?

Q. Yes.

A. No.

Q. Well, give me some further detail on that, if you will.

Mr. KIRBY: What do you mean.

Q. You say it was not all at the same time. Were there long intervals and, if so, what were the intervals between the different parts of your process?

A. There were intervals varying from a few hours to a few days between the different operations in the examination.

Q. Were your samples kept sealed between the various steps in the tests?

A. They were kept in a locked closet.

4949 Q. Were the samples sealed or stopped, carefully stopped?

A. They were carefully stopped.

Q. With cork?

A. With cork.

Q. Can you give me the temperature of the distillation fractionating the oil into the five parts?

A. I can give you approximately the temperature at the end of the distillation of each fraction.

Q. Yes, that is what I mean.

A. Do you wish the approximate temperature at the end of each

distillation of each fraction from the sample marked "Standard Fuel Oil"?

Q. Yes.

A. At the end of the distillation of the first fraction the temperature was about 495 degrees F.; at the end of the second about 555 degrees F.; at the end of the third about 600 or 605 degrees F.; at the end of the fourth about 645 degrees F.

Q. Did you also filter the second sample dated "January 6th, 1905"?

A. I did not.

Q. Will you give me the percentages of each distillation thrown off by each distillation and the temperature at the conclusion of each?

A. Each fraction was 20 per cent. by volume of the sample taken for the fractional distillation, and the temperatures were, at the end of each distillation, of the first fraction about 470 degrees F.; at the end of the distillation of the second fraction about 550 degrees F.; at the end of the distillation of the third fraction about 620 degrees F.; and the end of the distillation of the fourth fraction about 668 degrees F.

Q. What do you mean when you speak of the oil handed you as being made up of a single oil or being made up of a combination of oils?

Mr. KIRBY: He has not made such a statement, Mr. Mathewson.

Mr. MATHEWSON: You asked him whether this was not a mingled oil, a mixed oil.

4950 Mr. KIRBY: I asked him whether this oil was not made up of oils of different gravities.

Mr. MATHEWSON: I think that means the same thing.

Q. What do you mean by saying this is an oil made up of different gravities?

A. I mean that the sample I tested consisted of constituents having different gravities.

Q. That does not mean that the oil, as it comes from nature, might not have different gravities when it was distilled or the fractions might not show different gravities when it was distilled, does it?

A. Will you kindly repeat the question?

Q. Does that necessarily mean when there are distillations showing different gravities that it is a mixture of five oils, artificially produced?

A. It does not necessarily mean that it is an artificial mixture, if that is an answer to your question.

Q. It may be a natural product as it appears?

A. Certainly.

Q. In other words, the mixture might have been done by nature instead of by man, for all the distillation shows?

A. It might.

By Mr. KIRBY:

Q. But it does mean, does it not, that this distillation is not all 34 degree oil?

A. Certainly. The products of the distillation are not all 34 degree oils.

By Mr. MATHEWSON:

Q. Taking the oil as it stands, "Standard Fuel Oil," it does mean that the oil as you tested it, after filtering, showed 30.3 Beaumé at 60 degrees?

A. 30.3 Beaumé at 60 degrees F.

4951 Q. And the other 33.5 degrees Beaumé at 60 degrees?

A. Yes, sir.

Q. Will you give me the length of time that the distillation of each one of these fractions consumed?

A. No, I cannot give you the length of time consumed.

Redirect-examination by Mr. KIRBY:

Q. In filtering this oil marked "Standard Fuel Oil, November 20, 1906," what did you filter it through?

A. Through ordinary filter paper.

Q. And what did that remove, if anything?

A. Suspended matter, and perhaps water.

Q. No constituent part of the oil itself?

A. Some of the oil remained in the filter paper, but there is no reason to suppose that it would remove more of one constituent than of the others in the oil.

Q. What was the purpose of the filtration?

A. To remove the foreign matter before testing the oil.

Q. That is, what we would com-only call dirt?

A. Dirt.

Recross-examination by Mr. MATHEWSON:

Q. And tar?

A. I saw no evidence of tar.

Q. The filter would not remove tar or any of it, would it, Professor? How is that?

A. It would depend entirely upon the conditions under which you attempted to remove the tar with filter paper.

Mr. MATHEWSON: I ask to have these two bottles marked for identification and left with the Master, subject to our inspection and testing, if we see fit.

The bottle labeled "Standard Fuel Oil, November 20, 1906," is marked for identification, Complainant's Exhibit 259.

4952 The bottle labeled "January 6, 1905," is marked for identification, Complainant's Exhibit 260.

Mr. BURR: I also have a couple of letters that I would like to submit to Mr. Mathewson and the Master. You will recollect that Professor Bemis testified that Lynn reduced the rate voluntarily to ninety cents, and that his information was that it had also quite recently reduced the price to eighty-five cents, he believed, October 1st.

(Mr. Burr then presented a letter on the subject and made a statement as to its contents, which, by direction of the Master, was stricken

from the record on Mr. Mathewson's motion, and objection to its competency.)

Mr. BURR: And I except now to the striking out, and ask that this paper be marked for identification.

Marked for identification, City's Exhibit 123.

Mr. BURR: I have here a letter from the acting Director of the Department of Commerce and Labor, Bureau of the Census, to certify to the correctness of the statements made by Professor Bemis as regards the growth of the population of the City of New York, and in contradiction of the conclusion arrived at by the Herring-Burr-Freeman report to which Mr. Mathewson referred.

Mr. MATHEWSON: Same objection.

The MASTER: Mark that for identification also.

Mr. BURR: I offer that in evidence. It is an official document.

Mr. MATHEWSON: I object to it as incompetent.

Objection sustained. Exception.

4953 Paper marked for identification, City's Exhibit 124.

Mr. BURR: I offer in evidence the Referee's report filed in the County Clerk's office, in an action brought in the New York Supreme Court, New York County, entitled The People of the State of New York against The Union Gas Light Company of the City of New York and another; J. M. Varnum, Attorney for Receiver; filed August 7th, 1875. And I ask to have spread upon the record those parts which I have marked in the copy, which I will hand to the Stenographer. It is offered for the purpose of showing that in this proceeding the real estate and franchises of this company were valued at a certain figure, some Five Hundred and Fifty Thousand Dollars in 1875, which was much less than the value of the franchises as stated in Yalden's Report, or in the report of the Committee of 1886, Senate Document 47, I think it was.

Mr. MATHEWSON: Objected to as incompetent evidence and immaterial and irrelevant, and it relates to a corporation which was not one of our constituents.

The MASTER: I will take it for what it is worth.

4954 New York Supreme Court.

THE PEOPLE OF THE STATE OF NEW YORK
against
THE UNION GAS LIGHT COMPANY OF THE CITY OF NEW YORK and Another.

To the Justices of the Supreme Court:

I, Elias J. Beach, the Referee appointed herein by an order made by this honorable Court on the second day of August, 1875, and to whom it was by said order referred "to examine and report as to the truth of the facts stated in the petition of the Receiver of the Union Gas Light Company bearing date on the 28th day of July, 1875, and as to the nature and character of the property described in said petition, the value thereof and the advisability or inadvisability of allowing the whole of the same to be sold together by the said Receiver by

private sale or negotiation" do respectfully report to this Honorable Court.

That, after having been first duly sworn, due notice of the time for the hearing of the matter so referred to me as aforesaid was given to all the parties to this action and to the creditors of the Union Gas Light Company, as appears by the notice of trial with admission of service thereon endorsed hereunto annexed and marked "Exhibit 'N'".

That upon the time appointed for the commencement of such reference, to wit, the 4th day of August, instant, there appeared before me Mr. F. J. Fithian of Counsel for the Attorney-
4955 General the plaintiff's attorney herein, Mr. J. M. Varnum of Counsel for, and in behalf of the Receiver of the Union Gas Light Company, the petitioner herein, Mr. R. M. Harrison of Counsel for and in behalf of all of the defendants herein and Messrs. Foster & Thompson of Counsel for Messrs. J. Boorman, Johnson & Company, General creditors.

That in accordance with the provisions and directions of the said order of appointment, I duly summoned before me and examined under oath in relation to the matter so referred to me, such of the officers, creditors and stockholders of the Union Gas Light Company, and such other persons as I deemed necessary and proper in order to fully satisfy and inform myself on the matters so referred to me as aforesaid, and that the names of the witnesses so examined by me are as follows:

Robert M. C. Graham, John Sickels, J. Boorman Johnston, Thomas F. Rowland, Henry Morgan, William Foster, Junior, and James M. Varnum.

That certificates under the hand of the Clerk of this Court showing and certifying that Charles Edgar Appleby had been appointed Receiver of the Union Gas Light Company by an order made herein on the 15th day of June, and that on the 16th day of June, 1875, he duly made and filed his bond as such Receiver, were produced and exhibited to me.

That the testimony of each of the said witnesses, taken under oath, was reduced to writing and duly subscribed and sworn to by each witness, and all of said testimony is annexed to this report for the full information and satisfaction of this Court, and is marked "Depositions."

That upon said reference a paper was presented to the
4956 Referee, signed by all the unsecured creditors of the Union Gas Light Company, and sworn to by them asking that the prayer contained in the said Receiver's Petition be granted; all of which will more fully and clearly appear by reference to the said paper hereunto annexed and marked "Exhibit A."

A copy of the Inventory filed by the Receiver showing the assets and liabilities of the Union Gas Light Company referred to in the testimony of R. M. C. Graham is hereunto annexed and marked "Exhibit No. 1."

And after examining the witnesses above named and taking such other and further proof as I deemed proper and necessary in the

premises, and after due consideration thereon, I, Elias J. Beach, as Referee as aforesaid, do report to this honorable Court, as follows, viz.:

First. I find generally that all material facts stated in said Receiver's petition are true.

Second. I find that Charles Edgar Appleby, the Petitioner herein was on or about the 15th day of June, 1875, duly appointed the Receiver of the Union Gas Light Company of the City of New York; that he has given and filed the bond required of him as such Receiver by said order of appointment, and has in all particulars duly qualified and entered upon the performance of his duties as such Receiver, and that on or about the 28th day of July, 1875, he duly made and filed in the Office of the Clerk of this Court an Inventory of the Assets and Liabilities of the said Union Gas Light Company and that the said Inventory was just, full and true.

Third. I find that the assets of the said Union Gas Light Company consist of the following, viz.:

4957 *1st.* A block of land situate in the 12th Ward of the City of New York, bounded and described as follows: Beginning at the point of intersection of the Easterly side of the Second Avenue and the middle line of 99th Street; thence running along the said middle line of 99th Street, crossing the First Avenue to the Harlem River as laid down on Randall's Map; thence along the Harlem River as laid down on said map to the middle line of 98th Street; thence Westerly along the said middle line of 98th Street to the Easterly side of the Second Avenue; thence along the said Easterly side of the Second Avenue to the place of beginning: Together with pre-emptive and other rights in and to the lands under water in front of said premises. That upon the said land and premises buildings and works for the manufacture of gas have been commenced, but the same are now in an unfinished and incomplete state, and which buildings and works cover the greater portion of the said land and premises.

2nd. A right to lay mains and pipes in and along the streets, public avenues and other public places in and of the City of New York, which right the Union Gas Light Company has acquired and holds by intermediate assignments and transfers from the Anthracite Gas Lighting & Heating Company, to which Company and its assigns the said right and license was granted by the municipal authorities of the City of New York by an ordinance duly passed by the Common Council September 17th, 1863, and amended subsequently by the said Common Council and approved by the Mayor of the City on or about the 29th day of May, 1865.

3rd. An interest in a contract made by the Union Gas Light Company with William Foster, Junior, and certain other grantees of a grant from the State of New York, and known as, and

4958 described in, Chapter 944 of the Laws of this State, passed June 12th, 1871; by which contract the said Company undertakes to manufacture gas for illuminating purposes, and to lay mains and pipes to conduct that gas through and along streets, highways, and certain other public places, specified in that grant, which

are situate in those parts of the City of New York above and north of the centre line of Seventy-ninth Street, and also in the whole of Central Park in said City.

4th. That there are also among the assets of the said Company certain unpaid cheques of Cornelius S. Bushnell amounting in the aggregate to the sum of about $17,611 81/100 (Seventeen thousand six hundred and eleven and 81/100 dollars), which are considered by the Receiver after diligent inquiry to be bad and uncollective debts.

5th. That there are also in the office of the Company at No. 1½ Pine Street certain articles of office furniture of a value not exceeding Three hundred dollars ($300).

Fourth. I find that the liabilities of the Union Gas Light Company are as follows:

1st. Judgments, being liens upon the real estate of the Company, amounting with interest to about Forty-six thousand dollars, *$46,000.*

2nd. Bonded Indebtedness and interest thereon secured by mortgage upon the real estate and franchises of the Company, apparently about Five hundred and seventy-five thousand dollars, *$575,000.*

(The full amount of this claim is not admitted by the Receiver of the Union Gas Light Company to be due, and this sum is therefore subject to reduction upon compromise or settlement).

4959 *3rd. Unpaid Taxes and Assessments* upon said real estate amounting with interest to about Eleven thousand six hundred dollars, *$11,600.*

4th. Other valid claims against the said Company unsecured by lien, about Ninety-seven thousand nine hundred dollars, *$97,900.*

5th. There is also a claim of Twenty-one thousand dollars ($21,000) made by J. B. Johnston & Company in liquidation against the said Company on account of overdue coupons, no part of which is admitted by the Receiver to be due.

That the total amount of the claims of every description against the Union Gas Light Company, not including the said rejected claim of J. B. Johnston & Company in liquidation, is about the sum of Seven hundred and thirty thousand five hundred dollars, *$730,500.*

Fifth. I find that the real estate of the said Company set forth is of a value not exceeding Two hundred thousand dollars ($200,000) excluding buildings and works for the manufacture of gas thereon erected, or in course of erection; that the said works are of great extent, covering the greater portion of said property and were erected at great expense, but that the same are now, and have been for several years, in an incomplete and unfinished state, and will require a further expenditure of at least one hundred and fifty thousand dollars ($150,000) to put them in working order so as to make gas, not including the expense of laying of any mains, building fences or filling in ground, and that said works and buildings would be of but little value for any other purpose than the manufacture of gas; and that the said real estate would be but little, if any, enhanced in value to any ordinary purchaser by reason

4960 of such buildings and works being erected thereon, unless such purchaser should desire to use the same for the manu-

facture of gas, which he would be unable to do unless he had also acquired rights and franchises for laying mains and conducting gas, &c., and it is probable that any person purchasing the said real estate for any other purposes, would regard the works and buildings thereon erected as a drawback rather than an advantage to said land, by reason of the great expense incidental upon removing them to make room for other buildings. I also find that the said property is now in danger of great waste and deterioration, by reason of the washing away by the water of the East River of the fillings of the bulkhead erected upon the water front of said premises, which washing away, if suffered to continue much longer, will entail very large expense upon the owners of said property for necessary repairs to said bulkhead and the filling behind the same.

Sixth. That, the value of said land would be much greater to any person acquiring also the rights and franchises of the Union Gas Light Company, and especially as the large expenditures heretofore made for works and manufactures would then be of use and importance to the person or persons so acquiring it. That the value of the rights and franchises owned by the said Company hereinabove set forth apart from its real estate, cannot be exactly nor approximately ascertained by any ordinary method of computation and is incapable of estimation, but that their relative value is in a great measure dependent upon the ownership of land and gas works which could make them of pecuniary value and use, nor would such incorpore-l rights and franchises be of any considerable or appreciable absolute value to any person or persons not also acquiring
4961 the land and appurtenances.

Second. And I find that the said real estate with its appurtenances, and the said rights and franchises of the Union Gas Light Company, are so united as a whole and each part so depends upon the others for its relative value that a sale thereof separately and in portions would not realize as large a sum as a sale of the same in entirety, and I therefore report that it is advisable that the said real estate and franchises of every nature should be sold together by the said Receiver.

Eighth. And I find that if the said property and franchises were sold as a whole in entirety at public auction or vendure, there would be great danger and hazard, by reason of the peculiar character of the property, as hereinabove set forth, that it would be sold at a sacrifice and for much less than could be realized at private sale, and that the bidders would probably be so limited, as to practically defeat the purpose of a public auction, and I therefore report that it is advisable for the interests of all parties that the Receiver should be allowed to sell the whole of the said property together by private sale or negotiation, subject however to the approval of this Court.

Ninth. And I further find and report the probable value of the whole of the real estate and buildings and works thereon erected, and the rights and franchises of the said Union Gas Light Company, if sold together, would be about the sum of Five hundred and twenty-five thousand dollars ($525,000), which would be a just and fair price therefor.

4962 *Tenth.* And I further find that the property and estate of the Union Gas Light Company are constantly decreasing in value, by reason, not only of the damage being done by water to the real estate, as above set forth, and of the injury to the works and machinery by the weather, but also by reason of the interest constantly accruing upon the large indebtedness of the Company, and of the necessary current disbursements for the care and protection of the said property; and I also find that the mortgage bondholders threaten a foreclosure of the mortgage upon the said property and franchises unless some action is speedily taken towards the payment of the said indebtedness, and that one of the judgment creditors has advertised the said property for sale under an execution under his judgment and that the same will be probably sold upon the 19th day of August, instant, unless some settlement is made prior thereto; and that if such sale be made under foreclosure or at sheriff's sale, great loss and injury will be likely to accrue therefrom to all other persons being creditors or stockholders of said Company; and I therefore find that the allegations contained in the Receiver's Petition, as to the necessity and desirability of having such sale effected without unnecessary delay, are true.

And in recapitulation I would briefly report the following as my

Conclusion

upon the matters referred to me, viz.:

First. That the material facts stated in the Receiver's Petition are true.

4963 *Second.* That the nature and character of the property of the Union Gas Light Company is as set forth in said Petition (except as hereinbefore noted).

Third. That is is advisable for the interest of all parties that this Court should allow the real estate with the buildings and appurtenances and all the franchises and incorporeal rights of every kind of the said Union Gas Light Company which are the subjects of legal sale and transfer, to be sold together by the Receiver.

Fourth. That it is advisable for the interests of all parties that this Court allow such sale to be made by the Receiver by private sale or negotiation, but subject to the approval of this Court, and that such sale should be carried out without unnecessary delay.

Fifth. That the probable value of all of said property does not exceed Five hundred and fifty thousand dollars ($550,000) and that a just and fair price therefor would be about the sum of Five hundred and twenty-five thousand dollars ($525,000).

Sixth. That the Receiver of the Union Gas Light Company should be authorized and directed by this Court to negotiate a contract for the sale and proper transfer legally of the real estate, buildings, works, incorporeal rights and franchises of every kind of the said Union Gas Light Company of the City of New York, which are the subject of legal sale and transfer, and that such a sale be negotiated for the highest possible price, but not for less than the sum of Four

hundred and seventy-five thousand dollars ($475,000), with-
4964 out the further direction of this Court, and upon such terms as are likely to effect the true interests of the Bondholders and other creditors and of the Stockholders of the said Union Gas Light Company, and that such negotiation be undertaken without unnecessary delay, and that the same, if any be effected, be, with its particulars, forthwith reported to this Court in accordance with the rules and practice thereof.

All of which is respectfully submitted.

New York, August 7th, 1875 .

ELIAS J. BEACH, *Referee.*

* * * * * * *

Testimony of R. M. C. Graham, who being duly sworn, testified as follows:

I am the President of The Union Gas Light Company. I am also a Creditor of the Corporation to the amount of about $60,000—am familiar with the character of the property of the Corporation. It consists of the following items or particulars. I have before me a copy of the Receiver's Petition in this proceeding and have read over the several specifications therein contained and each of them and am personally acquainted with each of the specifications therein stated and know each and all of them to be true, and if I should proceed to give other or independent evidence on these points, it would be merely a recapitulation of the statements contained in that petition which I now adopt as a part of my testimony.

* * * * * * *

I have before me a copy of the Receiver's Inventory which covers not only the assets, but also the liabilities of said Company, as shown by Schedule A, which schedule gives an accurate statement
4965 of the claims and liabilities of said Company and I desire to make that schedule a part of my testimony.

Q. What do you estimate or consider the reasonable value of the Real Estate franchises and contract specified in the Petition provided you deem yourself competent to make an estimate?

A. The Real Estate with the franchises and the contract and specified as 1st, 2nd, 3rd in list of assets in the Receiver's Petition. If taken together are worth in my judgment the sum of $575,000. If these properties were divided and sold separately the whole would not be worth near as much as I have named. The buildings are only suitable for Gas purposes and the buildings and land as now situated becomes much more valuable by having the franchises connected with and covered by the same ownership. If the land and buildings as they now are were sold separately, there is great danger that the whole Real Estate with the buildings such as they are would not bring more than the bare land, the value of which would be about $200,000, and if any increase for the buildings could be obtained it would be small. I do not deem myself competent to fix any value on the franchises or contract. They are of such an exceptional nature depending upon so many extraneous circumstances that I would not be willing to fix any value on them.

Q. Have you considered the question as to the advisability or inadvisability of allowing a sale of the Real Estate franchises and contract together as one property by the Receiver and if so please state any fact or matter relating thereto?

A. I have considered that question and devoted considerable time upon the investigation of that subject and have sought the aid of gas experts and am satisfied that the best interests of the Stockholders, Creditors and all interested parties would be materially pro-
4966 moted by authorizing and allowing the Receiver to make sale of the whole property, with the franchises to one purchaser and I can perceive many advantages that might accrue by permitting the Receiver to negotiate or contract for a private sale of this property. I have considered the question of a sale by auction and think that more of sale would be hazardous as there might be little or no competition. There is a large amount of interest constantly accruing against the Company with Taxes and Water Rates and a very considerable expense for watching, protecting and the preservation of the property. One of the Bulkheads or rather the Bulkhead on the North side of the property has broken ground and is washing away; unless soon repaired very large injury will be likely to be done to that portion of the property filled in.

R. M. C. GRAHAM.

Subscribed and sworn to before me this 4th day of August, 1875.

ELIAS J. BEACH, *Referee.*

* * * * * * *

Testimony of James Boorman Johnson, who being duly sworn testified as follows:

I am a member of the firm of J. Boorman Johnson & Co. in liquidation and as such a Creditor of the Union Gas Light Company on account of money loaned and advanced to such Company amounting to about the sum of $56,000.

* * * * * * * *

Q. What in your judgment would be the value of the Real Estate belonging to this Company without reference to the franchise or the particular buildings now on said land?

A. From $150,000 to $200,000.

4967 Q. What would be value of this property as a whole, taking in the building works, franchises and all as one property for the purposes of carrying on the business interest on this property?

A. Between $500,000 and $600,000, I can place no separate value on franchises but know that much money has been expended in the buildings, fixtures and appurtenances for the manufacture of gas. I am also a stockholder to the amount of 187 shares.

* * * * * * *

Testimony of John Sickels, who being duly sworn, testifies:

I am the secretary of the Union Gas Light Company and also a Stockholder and Creditor of such Company. I am well acquainted with its assets and liabilities and have read the foregoing deposition of Mr. R. M. C. Graham the President of such Company and have a

personal knowledge of each of the statements therein contained and such deposition is in all respects true, and I concur in the views and opinions therein expressed, not only for the reasons therein stated but for others, and I hereby adopt such deposition as a part or portion of my own.

JOHN SICKELS.

Subscribed and sworn to before me this 4th day of August, 1875.
ELIAS J. BEACH, *Referee.*

Adjourned to August 5th, 1875 at 1 P. M.

E. J. B., *Referee.*

* * * * * * *

4968 Testimony of Thomas F. Rowland, who being duly sworn, testified:

I am the owner of the Continental Iron Works at Greenpoint, L. I., and have been and am largely engaged in the manufacture of gas machinery for companies in New York, and familiar with the value of all Gas Works. Have been engaged in that Department for the past eight years. I am the owner of about 900 shares of the capital stock of Union Gas Light Company. I constructed the building and works of that Company so far as they have progressed. I stopped work there about the time of the Panic, about the Fall of 1873, and the Company since then has not been in a condition to resume operations. The buildings and works aside from the land have so far cost about $890,000, but the machinery is much injured by rust and otherwise and has largely depreciated in value. The works as they now stand would not be of any value to a purchaser except to be used for Gas Works. It would cost about $150,000 to perfect the works and put them in a proper condition for work—this does not include the filling-in of ground, the building of any fences or the laying of any mains.

I think it would be very hazardous to sell this property at auction or to sell the Real Estate separately or the franchises separately, but that all this property should be sold together as one property and as necessary for one enterprise.

I think it would be most conducive to the interest of creditors, stockholders and all parties concerned to authorize the Receiver to negotiate for a private sale of this property together.

I think the sum of $500,000 would be a favorable price at this time and I would advocate a sale at that price if no better one could be obtained.

4969 The works will naturally and necessarily depreciate in value provided they are not completed and put in operation. I mean the machinery and appurtenances.

THOS. F. ROWLAND.

Subscribed and sworn to before me this 5th day of August, 1875.
ELIAS J. BEACH, *Referee.*

* * * * * * *

SCHEDULE B.

Assets of the Union Gas Light Company of the City of New York.

I.

Real Estate.

A block of land in the 12th Ward of the City of New York, bounded southwardly by 98th Street, northwardly by 99th Street, westerly by the Second Avenue, and easterly by the East River or Harlem Branch thereof, with all water or other rights appurtenant or appertaining thereto; being property conveyed to the said Union Gas Light Company by Cornelius S. Bushnell and wife, by deed dated Dec. 6th, 1871, and recorded Feb. 15th, 1873, in Liber 1190 of Conveyances, page 64; together with the buildings and works for the manufacture of gas thereon erected, which latter are in an incomplete and unfinished state.

II.

Personal and Other Property.

1. Certain franchises or rights to lay mains in streets, avenues, &c., in the City of New York, acquired by the Union Gas
4970 Light Company by intermediate assignment from the Anthracite Gas Lighting & Heating Company, to which and its assigns the said right and license was granted by the municipal authorities of the City of New York, by an ordinance passed by the Common Council September 17th, 1863, and amended subsequently by the said Common Council and approved by the Mayor of the City of New York on or about the 26th day of May, 1865.

2. An interest in a contract made by the Union Gas Light Company with William Foster, Junior, and certain other grantees of a grant from the State of New York, and known as, and described in Chapter 944 of the laws of this State, passed June 12th, 1871, by which contract the said company undertakes to manufacture gas for illuminating purposes, and to lay mains and pipes to conduct that gas through and along streets, highways and certain other public places specified in that grant, which are situate in those parts of the City of New York above and north of Seventy-ninth Street and also in the whole of Central Park in said City; which contract bears date February 25th, 1874.

Mr. BURR: I understand it is not necessary, although the complainant has offered various statutes, to offer them. The Court will take judicial notice of them.

The MASTER: Yes, if they are public statutes.

Mr. BURR: Particularly those which we have referred to in our pleadings, such as the act against monopolies, the act forbidding discrimination against the City and several others.

Also I desire to say that we have submitted to Mr. Mathewson copies which we have procured from Messrs. Boardman,
4971 Platt & Soley of the certiorari proceedings which have been heretofore offered and testified to by Mr. Carter, for the purpose of enabling him to see whether the quotations and extracts from such papers to which Mr. Carter's attention was called were true and correct extracts from the original papers.

I also offer in evidence the so-called Remsen Gas Bill, to which reference was made in City's Exhibit 55 and regarding which a stipulation has heretofore been entered into and entered on the record of this hearing, the stipulation reciting that that bill was defeated and that no subsequent legislation was passed in this State; so that the Court may be informed of the nature of the Remsen bill, which is referred to simply in that statement as "The Remsen Bill." It being entitled "An act to amend Chapter 338 of the Laws of 1892, entitled 'An act to authorize the East River Gas Company of Long Island City to supply gas and electricity in the City of New York,' so as to authorize the said company to lay and maintain mains and pipes in that portion of the Borough of Queens included in the former city of Long Island City."

Mr. MATHEWSON: I do not think it is of the slightest importance and relevancy and I object to it. It never becomes a law.

Mr. BURR: In other words, the point I want to make by the introduction of that bill is this. That whatever remedy was sought to be applied to the existing conditions or conditions as they then existed was not applied because the bill failed to be approved by the Governor and that the condition that then existed still continued to exist, whatever that condition may have been, and they
4972 were careful to say that Exhibit 55 clearly and truly stated the attitude of the gas company at that time.

The MASTER: I think that is rather ancient history, Mr. Burr. I will exclude it.

Mr. BURR: It may be ancient, but it may also be very material.

The MASTER: I do not think it is material and I will exclude it.

Mr. BURR: Exception. That is all the evidence which the defendant, the City of New York, can offer to-day. At the same time, I wish to apply for an extension of time, and I want to call the Master's attention to the situation as it exists here at this moment. In the decision of Mr. Justice Lacombe——

The MASTER: There is no use of spreading any long motion of this kind on the record because I advised Counsel over a week ago that I could not grant any further extension, and that is the end of it.

Mr. BURR: I am not going to spread any long statement on the record.

The MASTER: I understood you were about to review the situation and make some motion.

Mr. BURR: No. I want to state my position in just a few words. I say Mr. Justice Lacombe in his decision says "Under the authorities in fixing the rate to be charged for 'public service' by private corporations two elements of calculation are of fundamental im-

portance. What is the true present value of the property embarked in the enterprise? And what, in view of the risks of the business, is a fair annual percentage of return thereon."

We have not now before you what in our estimation is the true present value of the property embraked in the enterprise,
4973 by reason of the fact that we have been unable to complete the examination of the plants of the Company——

I want to say also that this is not due to any neglect on our part. This is a case of vast importance and through no fault of our own the engineers that were employed by the State were not accepted and that should not place the City of New York in the position which it evidently does by reason of the fact that without a further opportunity we will be deprived of an opportunity to examine the remaining plants. This is a great case, involving as the Judge says, a little later on in his opinion, the interest of—he says, "This Court fully appreciates the importance of a prompt disposition of this cause, which not only presents questions of grave importance, but which also (including the other causes heard at the same time) affects the interests of nearly half a million of households." Under those conditions, unless it fairly appears that we have been guilty of laches or neglect, it seems to me a short adjournment or extension of time for the purpose of enabling our engineers, who have been testifying right up to this present moment, to have further opportunity to examine these plants for the purpose of testifying as to their present value, which seems to be thought of importance in Judge Lacombe's opinion, would be a serious position in which to place the defendants, and would be, in my opinion, a substantial denial of justice.

Furthermore, to-morrow I expect to have some testimony with regard to the question of oil. The witness will be here in the morning, I am informed.

Mr. MATHEWSON: It does not appear that the City has
4974 engaged any engineers at all. The State engaged engineers.

Mr. BURR: It does appear that Doctor Marks has already examined the 14th Street station and has testified that he has——

The MASTER: I do not care to listen to any further discussion on this subject. If you have any further evidence, produce it. If not——

Mr. PAGE: Do I understand that the Master rules that we cannot make an application?

The MASTER: Not at all, but having called attention to the fact that an elaborate argument of a motion was not necessary, and Mr. Burr assuring me that he did not intend to make any, he thereupon proceeds to go on and make one, after which Mr. Mathewson naturally insists upon his right to reply, and then I suppose Mr. Burr will want to be heard again, and then I suppose you will want to be heard, and I want to give you all notice now that it is useless.

Mr. PAGE: I thought your remark was being addressed to me, because I was about to say something.

The MASTER: I was talking to Mr. Mathewson and not to you.

Mr. PAGE: I would like to get the application on the record,

without making any elaborate argument or statement, that as appeared from the testimony of Mr. Edgerton to-day, he had been engaged in the examination of the plants and had completed the physical examination of the 42d Street plant and could complete the examination and be ready to testify as to the details of all within ten days; that the condition which has arisen, as the Master knows, has arisen since he made his announcement that he would not grant the extension, and that the engineer whom we had employed
4975 and who had made the examination failed to give us the results that we had employed him to give—I do not mean in amounts but as to the methods of computation; and that we having been engaged and having Mr. Edgerton on the stand up to to-day, I would ask for an extension of ten days, that is for us, and at the end of the ten days, if the extension would not be granted, we would be enabled to produce that evidence at that time; further that the sample of oil is now in the hands of a chemist and an oil expert, the sample of oil that was produced here, and we would like an opportunity to put in the results of that examination which is being conducted to-day and that we had supposed would be completed in time to put in to-day.

The MASTER: That application I will deny. If, for the purpose of straightening up this oil question or closing up any other matter that you have unfinished, Mr. Mathewson chooses to let either of you gentlemen use any of the time allotted to him for rebuttal, that is another matter; there is no objection, as far as I am concerned, to that. If, however, he wants all of his time for rebuttal and objects to your putting in any further evidence after the expiration of the time which is now expiring, why, that would seem to dispose of it.

Mr. PAGE: I feel under the circumstances that the importance of the evidence to the defendant, and the fact that this case has been tried more rapidly than any equity case that I know of, involving anything like the issues involved here, and that we have been diligent in proceeding from day to day; that it is a matter that should rest with The Master, and that we should not be thrown on
4976 the courtesy of adverse counsel. It seems to me that the denial of this right be an exercise of power which The Master should not assume the responsibility for.

The MASTER: You understand, gentlemen, I have no power to dispose of the matter finally. My only function is to certify to the Court my own opinion about it from my supposed familiarity with the progress of the case from day to day. There is nothing to prevent your applying to the Court for an extension of time on such papers as you may determine and making such representations as you think will appeal to the Court for that purpose. It may well be, in view of what Mr. Burr states about the further extension and what you state about your oil question——

Mr. PAGE: My application is also for a further extension.

The MASTER: It may be on those grounds the Court will see fit to give you further time. But so far as my personal feeling about certifying a further extension is concerned, my position was taken several days ago and I have not seen anything to change it, more

especially as some part of this evidence seemed to me of very doubtful materiality at best; some of these comparisons of other oils around here and all that, unless further connected than the evidence is now, seems to me to be of very doubtful materiality.

Mr. PAGE: I agree with you on that proposition, and it was to connect that that we wished to put in this analysis of the oil that they are actually using. As far as the oil is concerned, I
4977 think that the evidence we have produced unless connected more closely, will not be of much weight.

The MASTER: It seems to me, as far as my attitude was concerned, you knew this oil question was in the case months ago. You had the contract, and had the oil question before me months ago and claimed they were paying too much for the oil; and if you wanted to make an examination, you had months to do it. It did not depend upon the examination of the plant or anything else, you could have produced all this oil testimony weeks ago as well as you could on Saturday and to-day. As to the question of the inspection of the plants, I have gone over that again and again. The application was made to Judge Lacombe as early as August for an inspection of the plants and you gentlemen did not see fit to press it, and from my standpoint the defendants have been guilty of laches in this matter. I have certified all the extensions of time that I am willing to. In view of my instructions received from the Court repeatedly to speed this cause, I took considerable responsibility the last time in giving a much longer extension than any the Court gave during the summer; and as I told you, I cannot in justice to myself certify any further extension under these circumstances. But there is nothing in that fact to prevent you gentlemen making such application as you may be advised to the Court.

Mr. BURR: I think the testimony of all the witnesses we have called shows we have not been guilty of laches or negligence but we have been working night and day to present the case within
4978 the time fixed, and it has been in the preparation for the presentation of testimony that a great part of the time has been taken up. The complainant did not bring its case until it was entirely ready. You remember how they denied us the right to look at the plants, and yet one of the great questions in this case is what is the present value of the plant; and we did not get at that until we started in with the defense. Mr. Mayer's testimony is that he took seven weeks night and day with a large force of assistants——

The MASTER: I have decided it, and you might talk here for two weeks and I would not change my opinion.

Mr. BURR: I simply stated that in view of the statement that we were guilty of laches. We have all been working as hard as we could.

Mr. PAGE: I will take an exception.

Mr. BURR: I will also take an exception. I understand then, that as far as the defendants is concerned, our case is ended. We have no further opportunity to put in any further testimony except by permission of the Court.

The MASTER: Nothing except by permission of the Court, unless

you want to sit this evening, which I do not want to do very much, unless you do.

Mr. BURR: Then the other side starts in to-morrow with their rebuttal?

Mr. PAGE: I suppose, Mr. Mathewson, that you will extend your grace and courtesy far enough—there are a number of exhibits that have been prepared by the Consolidated Gas Company, and I am not sure, without going through and checking up, as to whether those exhibits have all been put in evidence or not. If any
4979 & 4980 exhibit prepared by the company that we desire to be put in evidence is found, I suppose you will have no objection, will you?

Mr. MATHEWSON: No, I do not think so, Senator. I cannot imagine that I would. I do not want to stipulate absolutely, but you show them to me and I will decide.

The MASTER: Put them in *nunc pro tunc*.

Mr. PAGE: Yes, because some of my originals have been carried off and copies left in their place, and I had to go over them and check them.

Mr. BURR: When do we proceed again?

The MASTER: When do you want to go on with your rebuttal? You have fifteen days as I recall it. You can take some of that in resting up, if you like, or go on to-morrow.

Mr. MATHEWSON: I shall hardly be able to go on to-morrow. There are a great many exhibits which are voluminous and I have had no opportunity to look at them while this case has been going on. I think I ought to have a week to prepare. I will ask until Thursday morning, and if I am able to proceed then I will do so; if not, we can ask for a further adjournment. If I am able to proceed then, I will. I am anxious to begin and finish as early as it is possible. If I find I am unable to do so, I can ask for a further adjournment, if that meets with the Master's views. If the Master has any engagements or plans which would require time on his part, that is something, of course, that Counsel would consider.

At 6 P. M. adjourned to Thursday, December 13th, 1906, at 10:30 A. M.

Last Exhibits:

Complainant's, 269.
State's, III.
City's, 124.

4981 Circuit Court of the United States, Southern District of New York.

CONSOLIDATED GAS COMPANY OF NEW YORK, Complainant,
vs.
JULIUS M. MAYER, as Attorney General of the State of New York; WILLIAM TRAVERS JEROME, as District Attorney of New York County; FREDERICK E. GUNNISON, JOHN C. DAVIES, and LUCIAN L. SHEDDEN, Constituting the New York State Commission of Gas and Electricity, and THE CITY OF NEW YORK, Defendants.

Before Arthur H. Masten, Special Master.

NEW YORK, *December* 17, 1906.

Met pursuant to adjournment.

Present: The Master, Mr. Page, Mr. Kirby, Mr. Burr, Mr. Mathewson, Mr. Garver.

4982 The MASTER: You may note on the record that the last hearing was adjourned until Thursday, December 13th, 1906, at 10.30 A. M., and was then further adjourned by me, on account of other engagements, until this morning.

I have received this morning from Judge Lacombe the following memorandum with directions to place it on the record:

"United States Circuit Court, Southern District of New York.

CONSOLIDATED GAS COMPANY
vs.
MAYER, Attorney-General, THE CITY OF NEW YORK, and Others.

LACOMBE, *C. J.*:

Upon application by defendants for extension of time to complete proof, the Master is directed to make the following disposition:

The taking of all testimony is suspended until Wednesday, December 26th, on which day the defendants may put in the testimony of

A. The witnesses (2) who obtained certain samples of oil and brought them to the chemist.

B. Mr. Stillwell, who made analysis of oil, and

C. Two witnesses to testify to grade and value of oil.

The direct testimony of A., B. and C not to exceed one day.

4983 On Thursday, December 27th, the defendants may examine on the direct such witnesses as they may call 'to close up loose ends of incomplete testimony.'

On January 3d defendants may proceed to examine.

A. Witness Edgerton; B., Witness Marks: as to value of plants 21st Street, 42d Street, Inwood, 99th Street, 44th Street, 111th Street, 122d Street, Chelsea.

The direct examination of A and B, however, shall not occupy more than three days.

After the close of defendants' case the plaintiff may have four days before beginning rebuttal.

This may be entered on record.

E. H. LACOMBE."

The MASTER: I will say for the information of counsel that it may be necessary for me to apply for a modification of these directions, because, supposing that the rebuttal would proceed this morning and be completed before January 1st, I have already an engagement to sit in another case of considerable importance, three days, January 2, 3 and 4. If counsel in that case are ready and expect to proceed I shall have to ask for such modification of this order as will leave me free on January 3d and 4th, instead of proceeding as herein directed. If, however, the counsel in that other case are not ready, or want an adjournment, then I shall proceed as herein directed.

Mr. BURR: There is no 122d Street plant; that should be 132d Street, I think.

The MASTER: If it is agreed it may be so entered on the minutes.

The change is consented to.

4984 The MASTER: So in accordance with that direction, the hearing this morning will be adjourned to December 26th, at 10.30 A. M.

Mr. GARVER: The Judge seems to have failed to have taken down the names of the witnesses who are to be called. I think it is only fair that we should know who those witnesses are, as we may want to have some rebuttal on that point.

Mr. PAGE: You will have four days from December 26th until January 6th for that; you can get your rebuttal ready in that time.

Mr. BURR: I cannot say who the persons are I will call on that point.

Mr. GARVER: For instance, "two witnesses who obtained certain samples of oil"; you know who those persons were?

Mr. KIRBY: They were simply messengers, that is all. What their names are, whether Jones, Brown or Smith, I do not know.

Mr. GARVER: And the two witnesses to testify to the grade of oil?

Mr. BURR: I said I would have one from New York and one from Philadelphia, but I do not know their names.

Adjourned to December 26th, 1906, at 10.30 A. M.

Last Exhibits:

Complainant's, 260.
State's, III.
City's, 124.

4985 Circuit Court of the United States, Southern District of New York.

CONSOLIDATED GAS COMPANY OF NEW YORK, Complainant,
vs.
JULIUS M. MAYER, as Attorney General of the State of New York; WILLIAM TRAVERS JEROME, as District Attorney of New York County; FREDERICK E. GUNNISON, JOHN C. DAVIES, and LUCIAN L. SHEDDEN, Constituting the New York State Commission of Gas and Electricity, and THE CITY OF NEW YORK, Defendants.

Before Hon. Arthur H. Masten, Special Master.

NEW YORK, *December 26th*, 1906.

Met pursuant to adjournment.
Present: The Master, Mr. Mathewson, Mr. Burr, Mr. Kirby.

4986 ALBERT E. WINCHESTER, called as a witness in behalf of the defendant, the State of New York, being duly sworn, testified as follows:

Direct-examination by Mr. KIRBY:

Q. Where do you reside?
A. At South Norwalk, Conn.
Q. Are you connected with the electric light company there?
A. The Municipal Electric Works.
Q. What is your position with that company?
A. General superintendent.
Q. As such do you have charge of the purchasing of oil, and are you familiar with the price you pay for the same?
A. Yes, sir.
Q. Are you acquainted with Mr. Henry H. Edgerton, the witness who has appeared in this case?
A. Yes, sir.
Q. Did you meet Mr. Edgerton in South Norwalk on December 5th of this year?
A. I believe it was that date.
Q. Do you purchase your oil from the Standard Oil Company?
A. Yes, sir.
Q. What is the kind of oil which you purchase?
A. Fuel oil.
Q. Where is this oil delivered to you and how?
A. It is delivered by tank wagons in our storage tank at the works.
Q. And it is delivered each day?
A. Generally speaking, yes, sir.
Q. What exception would there be from daily delivery?
A. Very stormy days and Sundays and holidays.
Q. Was December 5th a very stormy day or a Sunday or a holiday?

A. I think not; a pleasant day.
Q. What was the price you paid for this fuel oil?

4987 Mr. MATHEWSON: Objected to as immaterial and irrelevant.

The MASTER: What is the object of this?

Mr. KIRBY: We have put in evidence here the testimony of Mr. Edgerton to the effect that he obtained from the works of the Municipal Electric Works at South Norwalk a sample of fuel oil and brought the same to New York and delivered it to Dr. Sherman, and the testimony of Dr. Sherman who made the acknowledgment thereof as to what that oil consists of, as shown by chemical analysis. Mr. Winchester told us that they purchased their oil from the Standard Oil Company, and that it is delivered to them at their works, and now I ask him what the price is they pay for that oil under their contract, and it tends to show from that and the other testimony that the Consolidated Gas Company is paying too much.

The MASTER: I will allow it.

Mr. MATHEWSON: Exception. I should like to ask whether the witness has the entire contract here.

The WITNESS: What is that?

Mr. MATHEWSON: Have you the entire contract with the Standard; is it in writing?

The WITNESS: We have a contract in writing, yes, sir.

Mr. MATHEWSON: Have you got it here?

The WITNESS: I have it not here. I have no right to carry documents which belong to the municipality.

Mr. MATHEWSON: I shall object.

4988 Q. Your contract calls for fuel oil?
A. Yes, sir.
Q. And no other specification is mentioned in this?
A. No, sir.
Q. What is the price you paid for it.

Mr. MATHEWSON: Objected to.

The MASTER: As I stated the other day, it seems to me it is very open to question as to whether it is proper testimony in any aspect. Now the least you can do is to let Mr. Mathewson get his objection on record.

Mr. MATHEWSON: I object to the witness giving the terms of this written contract. What the terms or qualifications are may have a very material effect.

The MASTER: I do not understand he is undertaking to do that. I will let him testify to any matter he has any knowledge of. If he knows what the oil is and what he pays for it, he may testify.

Mr. MATHEWSON: Exception. May it be stricken out that it contained such a stipulation and nothing else?

The MASTER: Yes.

Mr. KIRBY: That was brought forth by your objection——

Q. Do you know how much you pay for this oil?
A. Yes.
Q. How much is that?

A. 3¾ cents a gallon.

Q. Do you know what you paid for this oil prior to October 25 last?

A. Prior to October 2d?

Q. Prior to October 2d.

A. 3¼ cents.

Cross-examination by Mr. MATHEWSON:

Q. Can you procure a copy of this contract?

A. I might be permitted to.

4989 Mr. KIRBY: The Standard Oil Company has the contract.

Mr. MATHEWSON: What is that? We are not the Standard Oil Company. I don't know whether we could get a copy of them.

Q. Will you produce a copy of that and send it to your counsel for submission to me?

A. If it is required, of course, I will do the best I can. I don't know whether it is a proper thing for us to allow a city document to pass out of our hands or not.

Q. Well, a certified copy of it, if you can?

A. I will endeavor to do so.

Q. Did you see Mr. Edgerton strain this oil or anyone else strain this oil, the sample of which was taken?

A. I saw no oil strained.

Q. Where was the sample taken which Mr. Edgerton took away?

A. I believe it was taken when the oil was being delivered in the tank.

Q. Where, at your place?

A. Yes.

Q. Was it taken from the tank wagon or after it got into your tank?

A. I understand it was taken from the tank wagon.

Q. Did you see it taken?

A. No, sir, I did not.

Q. Has the Standard Oil any tank near South Norwalk?

A. Yes, they have a distributing station.

Q. How much do you use in the course of a year of that oil?

A. Well, that is problematic; we are using, perhaps, in the neighborhood of 440 to 450 gallons a day.

Q. Do you mean on an average?

A. I think so. Our load is such that it is rather a difficult statement to make. The average commission from one part of the year to the other——

Q. Can you not give us a general idea of how much you use in a year?

A. I can guess, I guess.

Q. Give us the best view you have on that?

A. You will understand, of course, this is merely an estimate.

4990 Q. Yes.

A. I should say in the neighborhood of 150,000 gallons a year, estimated.

Q. Do you find the use of that more economical than the use of coal?
A. Yes, sir.
Q. What sort of coal do you refer to?
A. Any coal that we are able to procure.
Q. Can you use either soft or anthracite coal?
A. Yes, sir.
Q. For what quality of oil does your contract call?
A. I am not an oil expert.
Q. I understand, but you merely mean to say that you get gas oil at 3¼ to 3¾ cents?
A. I said fuel oil.
Q. Fuel oil, I mean.
A. Yes, sir.
Q. You don't know whether the oil runs even in gravity or not?
A. No, sir; I look for results.
Q. For use as fuel?
A. Yes, sir.
Q. You don't know whether there is anything in the contract with reference to gravity, or what the provisions are, but merely that it is fuel oil?
A. To the best of my belief, it is not stipulated as to what the gravity shall be.
Q. How do you determine that this is more economical than coal for use as fuel, and what are the comparative results?
A. We are producing something that we sell.
Q. Yes.
A. We have to know something in regard to the cost of that production; we have the two, we have the steam on the one hand and the oil power apparatus or oil engine on the other, and compare the two; the cost is approximately about fifty per cent. of that of steam.
Q. Fifty per cent. of that of steam?
A. Yes, generally speaking.
Q. Using what kind of coal under the boiler?
A. Bituminous coal.
Q. At what price?
A. At $3.50.

4991 ARTHUR DE FOREST COWPERTHWAITE called as a witness in behalf of the defendant the State of New York, being duly sworn, testified as follows:

Direct-examination by Mr. KIRBY:

Q. Where do you reside?
A. Danbury, Connecticut.
Q. You are the son, are you not, of the superintendent of the Danbury and Bethel Gas & Electric Co.?
A. Yes, sir.
Q. Are you acquainted with Mr. Edgerton, a witness who has appeared in this case?
A. Yes.

Q. Did you, in pursuance of a request of Mr. Edgerton, go to the works of the Danbury Company on December 5th or 6th, and there obtain a sample of oil and take it to Mr. Edgerton in New York?

A. Yes, sir.

Q. Just tell us where you went to, what you got, and what you did with it?

A. I went to the office of the works and unlocked the cabinet where the oils are kept and transferred the oil into other bottles and labeled them as I transferred them as they were labeled on the bottle; then I wrapped them up and brought them down to Mr. Edgerton, and took them to Mr. Edgerton at the Murray Hill Hotel.

Q. From whom did you obtain the key to unlock the cabinet?

A. My father, Mr. George E. Cowperthwaite.

Q. Did you take a sample from a bottle marked January 6th, 1905?

A. I did.

Q. (Handing bottle.) And is this the bottle to which you transferred part of that oil?

A. Yes, sir.

Q. And is that the bottle that you delivered to Mr. Edgerton at the Murray Hill Hotel?

A. Yes, sir.

4992 Q. Such bottle being marked Complainant's Exhibit 260 for identification December 10, 1906. Did you place that tag thereon yourself?

A. Yes.

Q. And that is your handwriting?

A. Yes.

Q. Did you have this bottle with you all the way from Danbury to New York?

A. Yes.

Q. Did you put anything in it?

A. Nothing except the oil in the first place?

Q. You delivered it to Mr. Edgerton in the same condition as that which it was after you had placed the oil in it from this other bottle?

A. Yes.

Cross-examination by Mr. MATHEWSON:

Q. You did not draw this oil which you found in the bottle in the closet at Danbury from the tank yourself, did you?

A. No, sir.

Q. You have no knowledge when it was drawn or who drew it, except from the label on the bottle, have you?

A. That is all.

Q. Did you take it up and pour a portion of the bottle which you found in the closet carefully into this bottle marked Complainant's Exhibit 260 for identification?

A. I did not mark that tag.

Q. No, that is not the question.

A. I poured all the oil in the bottle that I had into that bottle.

Q. This present bottle, Complainant's Exhibit 260, contains all the oil that you found——

A. Did contain it; I don't know whether it does now or not.
Q. It did contain all the oil that you obtained from the bottle in the closet?
A. Yes.
Q. Did you rinse out the bottle in the cupboard?
A. No, not in the cupboard, it was full of oil.
Q. Did you rinse it out to get whatever dregs there might be and pour them into this bottle here?
A. No.
Q. Whatever residuum there was in the bottle at Danbury you left it there?
4993 A. I could not very well rinse it out with water; I poured it all out, there wasn't any left in the bottle.
Q. Wasn't there more oil in this bottle, Complainant's Exhibit 260 for identification, than there now is?
A. I don't remember whether there was or not, because some of the bottles were full and some were not, and I don't remember whether that one was or not.
Q. How many other bottles were there in the closet, do you think?
A. There might have been anywhere from 20 to 25.

GEORGE ELY COWPERTHWAITE, a witness called on behalf of the State, being first duly sworn, testified as follows:

Direct-examination by Mr. KIRBY:

Q. Do you reside in Danbury, Connecticut?
A. I do.
Q. Are you superintendent of the Danbury & Bethel Gas & Electric Company?
A. Superintendent of the gas department.
Q. How long have you been such?
A. Since 1880.
Q. Is it the custom of your works to take samples of oil when the same is received by you from the concern from which you purchased it?
A. We take them occasionally; we do not sample every tank, but take them at intervals.
Q. When that is taken how is it taken, and what happens to the sample?
A. The men that unload the tank fills the bottle and brings it in to me.
Q. What do you do with the bottle?
A. Why, I label it, unless he has already labeled it, and put it away.
4994 Q. Where do you put it?
A. Well, I put them in a cupboard in my office until I get it filled. Subsequent to that I put them in storage up in the attic.
Q. After it is placed in that cupboard who has access to it?
A. I do. Nobody else.
Q. Is the cupboard locked?
A. It is locked.

Q. Who keeps the key?
A. I do.
Q. Have you in any way made any changes in the oil which was placed in the bottles which were put in this cupboard to which you have made reference?
A. No, sir.
Q. Do you remember your son, who has just testified, getting the key of that cupboard from you on about December 5th of this year?
A. I do.
Q. Did he tell you for what purpose he desired the key?
A. Yes.
Q. Did he say he wanted to take certain samples of the oil there and deliver them to Mr. Edgerton in New York?
A. That was what he said he wanted them for.
Q. Did you ever receive and place in that cupboard any oils other than those which are taken from the tanks, delivered to you from the concern from which you purchased your oil?
A. That is all.
Q. From whom do you buy your oil?
A. Standard Oil Company.
Q. Are you familiar with the price that you pay for that oil?
A. Yes.

Mr. MATHEWSON: I object to the testimony of the witness as to the price paid for oil in Danbury on the same ground as with reference to South Norwalk.
Objection overruled.
Exception.

Q. Now, will you state what you paid to the Standard Oil
4995 Company for the oil which you used?
A. 4¼ cents a gallon.
Q. You pay that to-day?
A. Pay it now.
Q. Did you pay the same price in January, 1905, as at the time this sample of oil was taken?
A. The same price.
Q. And there has been no change in price from that time until now?
A. No change.
Q. Have you any knowledge of the price which other gas companies are paying for gas oil?

Mr. MATHEWSON: I object to that, Mr. Master.
The MASTER: He can state whether he has any knowledge.

A. Yes, I have.
Q. Do you know how much the Williamsport Gas Company, at Williamsport, Pennsylvania, pays for their gas oil?

Mr. MATHEWSON: Of course, what they pay in Williamsport, Pennsylvania, the center of the oil regions, for oil, without any specifications of quality, degree or anything else in addition, of

course, would be idle, but I would like to ask this witness a question or two as to his knowledge in advance, if you consider that as admissable on any possible theory.

The MASTER: Mr. Kirby, it seems to me that is getting a little more remote than there is any justification for

Mr. KIRBY: Notwithstanding Mr. Mathewson's suggestion that Williamsport is in the center of the oil region, I think it can be shown there is no reason why oil should be less in Williamsport than it would be in Danbury. Freight has to be paid to both points, and if Williamsport does in fact receive its oil at a lower price than
4996 Danbury there must be some other reason for it than the closeness to the oil fields; and while the testimony may not have that weight which we hope that it has, it certainly is of importance to show that the Consolidated Gas Company is paying more for its oil than the companies situated in and around New York do, and it is for that purpose that I offer the testimony.

Mr. MATHEWSON: You remember your own witness testified that transportation was 1.05 from Pennsylvania here, to say nothing of Connecticut.

The MASTER: I do not appreciate the force of it myself. You can cross-examine him for a moment, Mr. Mathewson, to see whether it is worth while to take the testimony, anyway.

By Mr. MATHEWSON:

Q. Have you ever bought oil in Williamsport recently, for use in Williamsport?

A. No oil for use in Williamsport.

Q. Have you any knowledge as to what oil sells for there, except as some person has told you?

A. No person has ever told me.

Mr. MATHEWSON: It seems to me if he has bought none himself and nobody has told him——

Mr. BURR: He may state how he knows, I suppose?

Mr. KIRBY: I will bring out how he knows all right, if I am given the opportunity.

By the MASTER:

Q. What is the source of your knowledge as to the price of oil in Williamsport?

A. I received a bill made out to the Williamsport Gas Company by the Standard Oil Company, sent to me.

4997 Q. Sent to you by mistake?

A. I think so.

Mr. MATHEWSON: I press my objection.

The MASTER: I will exclude it, Mr. Kirby.

Mr. KIRBY: Exception. I will put it in over the Master's ruling.

By Mr. KIRBY:

Q. And did you, subsequently to the time that you received that memorandum giving the price of oil at Williamsport, Pa., communicate with the works at Williamsport, Pa., in relation thereto?

A. Yes. I wrote to——

Mr. MATHEWSON: He says yes. Now, I object to any further statement. I do not think that it is material, as to what the communication was or anything about it.

Q. Did you receive any reply from Williamsport to your communication?

A. Not from Williamsport. I received my reply from the Standard Oil Company.

Q. And is it from this communication which you received from the Standard Oil Company that you know the price which was set down in that memorandum was, in fact, the price paid at Williamsport?

A. I got my information from a bill made out to Williamsport. The letter from the Standard Oil Company did not quote the price, as I recollect it.

Q. Did it deny that the price set down in that bill was the price.

Mr. MATHEWSON: Well, no matter. I object to that.

Objection sustained; exception.

Q. Is that the communication you received from the Standard Oil Company (handing paper to witness)?

4998 Mr. MATHEWSON: I object to that all as incompetent, immaterial and irrelevant.

Objection sustained; exception.

The WITNESS: Am I to answer this?

The MASTER: Yes, the answer will be noted.

The WITNESS: Yes, I recognize this as the reply I received to my letter.

Q. From whom is that letter?

A. C. M. Higgins, manager Standard Oil Company, Naphtha Department.

Q. Do you remember the price set down on the bill which you received?

A. 3.37½.

Mr. MATHEWSON: I had no opportunity to object to that before the witness replied, and I interpose an objection now, on the ground that it is immaterial, irrelevant and incompetent.

Objection sustained.

Mr. KIRBY: Exception.

Mr. KIRBY: I offer this letter in evidence.

Mr. MATHEWSON: Same objection.

Objection sustained; exception.

The MASTER: Mark it for identification.

The paper is marked for identification, State's Exhibit JJJ.

Mr. KIRBY: And I also offer in evidence this bottle, Complainant's Exhibit for Identification No. 260.

Mr. MATHEWSON: I object to this bottle of oil also as immaterial and irrelevant.

The MASTER: I overrule that objection and take it for what it is

worth, without going into the question of how far it has actually been traced from the tank to this office.

Mr. MATHEWSON: Exception.

4999 Received in evidence and marked State's Exhibit KKK.

Q. Do you remember the context of the letter which you wrote to the Williamsport Gas Company which brought forth this reply, State's Exhibit for Identification JJJ?

A. I have a carbon copy of it in my pocket.

Q. What did that communication state?

Mr. MATHEWSON: I object to that as incompetent, irrelevant and immaterial.

Objection sustained.

Mr. KIRBY: Exception. I will place it in over the Master's ruling.

Q. Will you read that?

A. It is dated, "August 6, 1906, Williamsport Gas Company, Williamsport, Pa.

"DEAR SIR:

"Enclosed please find invoice of Standard Oil Company for tank of gas oil. It was mailed to us by mistake. You ought to be congratulated on the price. How did you get it? They charge us 4¼ cents. Won't you let us know the gravity of this? Where it is shipped from, and what the freight per gallon is, and oblige,

"Yours truly,

"G. E. COWPERTHWAITE."

Q. Do you know who the president of the Williamsport Gas Company of Williamsport, Pa., was, on August 6th, 1906?

A. According to Brown's Directory of Gas Companies, it was Mr. Gawtry.

Q. What was his first name, do you know?

A. I think it was Louis.

Q. Your impression is that it was Mr. Louis B. Gawtry?

A. That is my recollection.

5000 Cross-examination by Mr. MATHEWSON:

Q. You mean by that that your recollection is that that is the name you saw in Brown's Directory?

A. That is my recollection, yes, sir.

Q. What date? What was the date of this directory?

A. The last directory issued, I don't remember the date of it.

Q. Was it one issued since August 6, 1906?

A. I couldn't tell you.

Q. It covered the year 1904 or 1905, didn't it, instead of 1906?

A. Why, it would not cover 1904. It might have been 1905. It was the last directory that was issued. That is all I can answer about it.

Q. Is it one that you have up at Danbury?

A. Yes.

Q. Do you know when you bought it?

A. I could not give the date that we bought it. We take it every year.

Q. Why don't you buy your oil for less than 4¼ cents at Danbury?

A. I would like to.

Q. You have to pay whatever the Standard Oil Company charges you for it, don't you?

A. I think so.

Q. How much do you use in a year?

A. About three hundred thousand gallons.

Q. Were you present when this sample, State's Exhibit KKK, was drawn?

A. I don't know.

Q. You don't remember that you were, do you?

A. No.

Q. Do you know whether it was drawn from the top or the bottom of the tank?

A. I do not.

Q. Do you know whether it was drawn from the wagon that delivers it, the tank wagon of the Standard Oil Company, or whether it was drawn from your own tanks?

A. Ordinarily they take it from the company's tank. I did not see it taken.

Q. From the Danbury Company's tanks?

A. No, from the Standard's tank.

5001 Q. Has the Standard a tank at Danbury?

A. There is at the time they are unloading one, there is a tank car.

Q. Oh, from the tank car, or from the tank wagon, which?

A. Car; railroad car.

Q. Do you know Captain McKay of Boston?

A. I do.

Mr. KIRBY: I object. This is not proper cross-examination of this witness.

The MASTER: I do not know that from anything that appears yet. It may be very material. I will allow it.

Exception.

Q. Do you know he has been consulted in reference to various matters in reference to the Danbury work?

Same objection. Same ruling. Same exception.

A. Yes, sir.

Q. Within how many years past?

A. I think he has been consulted this year.

Redirect examination by Mr. KIRBY:

Q. I have been handed a list or a directory of directors in the city of New York. I see under the name of Louis B. Gawtry, 4 Irving Place, "Williamsport Gas Company, President and Director." That is the same name which you made reference to, is it not?

Mr. MATHEWSON: I object to the question. That is secondary evidence of the poorest kind, even if it were material, it seems to me.

Objection sustained.

5002 Mr. KIRBY: Exception. Now, you may answer.

A. That is the same name.

Recross-examination by Mr. MATHEWSON:

Q. And you observe that the date of this edition was April 1st, 1906, do you not, of the directory of directors?

A. April 1st, 1906.

HENRY H. EDGERTON, recalled on behalf of the State.

Direct examination by Mr. KIRBY:

Q. On the day which the witness Kirby has testified that he brought two cans of oil from the works of the Consolidated Gas Company to his office at No. 2 Wall Street, did you pour out from the can, the cork of which was marked A, a certain portion thereof into a bottle, and did you subsequently deliver that bottle to Mr. Albert G. Stillwell, the gentleman sitting in the back of the room here?

A. I did.

Mr. MATHEWSON: Hadn't you better identify that by the Exhibit number?

Mr. KIRBY: The same being State's Exhibit BBB, December 8, 1906.

Q. And the sample which you delivered to Mr. Stillweli was in the same condition as that when you drew it from the can which Mr. Kirby handed to you?

A. Yes, sir.

Cross-examination by Mr. MATHEWSON:

Q. Did you pour it from the top of the bottle which you
5003 gave him, or from the top of the sample which Mr. Kirby gave you?

A. I poured it from a tin can, the first that came out.

Q. Where did you deliver it to Mr. Stillwell?

A. I think at his office at 36 Gold Street, if I recollect.

ALBERT G. STILLWELL, a witness called on behalf of the State, being first duly sworn, testifies as follows:

Direct examination by Mr. KIRBY:

Q. Are you a chemist?

A. I am.

Q. Are you a graduate of any scientific school?

A. I am.

Q. Of what school?

A. Columbia University; the school of Applied Sciences.

Q. You hold a degree from that school?

A. Yes; Bachelor of Science.

Q. Are you at the present time carrying on a laboratory in the City of New York?

A. I am.

Q. What is the name of that laboratory?

A. Stillwell Laboratory.

Q. As such are you one of the official chemists of the produce Exchange in this city?

A. I am.

Q. Do you know the name of the other chemists that hold the same position?

A. Yes.

Q. What is that name?

A. Stillwell & Gladding.

Q. Were you formerly connected with that concern?

A. I was.

Q. When with them, and as such, have you made analyses of oil, and particularly of gas oil?

A. I have.

Q. From the Texas and other oil fields?

A. Yes.

Q. Did Mr. Edgerton, who was just upon the witness stand, deliver to you a certain sample of gas oil?

A. He did.

5004 Q. And did you make an analysis thereof?

A. I did.

Q. And did you come to certain conclusions from that analysis as to whether or not such oil was from the Pennsylvania oil fields?

A. I did.

Q. And is the result of that analysis and your conclusions therefrom set down in this statement which I hand you?

A. It is; they are.

Mr. KIRBY: I offer such statement in evidence, or rather, it may be incorporated in the testimony as an answer of the witness.

Mr. MATHEWSON: It seems to me that the statement presented incorporates some conclusions and statements on which the witness has not been shown qualified, but as it is in convenient form I won't object to it on that ground, provided it may be understood that I do not waive objections as to competency.

The MASTER: You had better take it and then you can cross-examine on it.

The WITNESS: The result of my analysis, and my conclusions therefrom, is as follows:

Certificate of Analysis of a Sample of Petroleum Gas Oil Marked S. T., Received from H. H. Edgerton, 12/13/06.

Analysis.

Specific Gravity of Oil at 15.50 C. 0.8535 equal 34 Baume, using table given by Sadtler in Industrial Organic Chemistry.

Distillation in fractions of 20 per cent.

	1st.	2nd.	3d.	4th.	5th.
Temp. C, to	268	268–330	330 up		
Sp. Gr.,	0.8004	0.8500	0.8620	0.8686	0.8860
Baume,	45.	34.5	32.5	31.2	28.

5005 Distillation by temperatures.

Temp., C to	150	150–300	300–360
Per cent.,	4.50 per cent.	43.00 per cent.	43.00 per cent.
Sp. Gr.,	.....	0.8390	0.8700

Sulphur: 0.730 per cent. and 0.091 per cent. average 0.082 per cent.

Oil will not flow at 5 F. On warming just flows at 14 F.

Original oil shaken up with sulphuric acid is greatly decolorized and acid is darkened.

Conclusion.

In distillation by 20 per cent. fractions, the range of gravities in the various fractions indicates that the oil is a *natural* oil, or not one distillate, distilled in narrow temperature limits and having definite gravity. This is proved by the fact that the second fraction, distilling between 268 and 330, was redistilled and all came over in same range of temperatures.

In distillation by temperatures, the practical absence of naphtha (under 150 C.) and the absence of non-volatile tar or coke (proved by distillation of fraction left in retort to complete dryness, with no residue left) proves that this oil is a distillate taken between these two limits.

The acid test on the oil shows that the oil is not refined after distillation.

Reasons for thinking this is not a Penn. oil:

The average analysis of Penn. oil given by Stillman is as follows:

5006 Naphthas to 150 C.....16.50 per cent.
Illuminating oils, 150-300.....54.00 per cent.
Heavy oils, 300 up.....17.00 per cent.
Paraffin ..... 2.00 per cent.
Tar or coke .....10.00 per cent.

If we eliminate the naphtha and tar or coke from Penn. oil and compare with sample under test, we have.

	Penn. oil.	Sample.
Illuminating oils 150-300	73.47%	45.00%
Heavy oils 300 up	26.53	55.00

This shows that an oil containing less illuminating oils than a Penn. oil, or else a mixture of oils has been used.

The sample tested smells of sulphur, while Penn. oil on best authorities obtainable should have none or at most but a trace.

Sample tested by analysis shows 0.082 per cent. sulphur.

A test for sulphur in a crude oil would show higher than in a distillate, as the sulphur hangs back in the higher boiling fractions.

Peckham in Report of Production, Technology and Uses of Petroleum states that sulphur in Penn. oil is very low.

Watts Dict. of Chemistry states that sulphur is absent in Penn. oils. The sulphur in Ohio oil averages 0.50 per cent.; in California is heavy; in Texas is heavy; in Louisiana, 0.36 per cent.; while in oil from Pennsylvania districts, comprising Pennsylvania, Western New York, West Virginia, and Southern Ohio, it is absent or at most only present in traces.

The conclusion reached by above tests on this oil is, that it is not a straight Penn. oil, but a mixture of Penn. oil with oil from other districts.

A. G. STILLWELL.

5007 Cross-examination by Mr. MATHEWSON:

Q. What do you mean in this statement by the expression "original oil shaken up with sulphuric acid is greatly decolorized and acid is darkened?"

A. Some of the oil was put into a test tube and shaken up with a small percentage of sulphuric acid.

Q. Some of this particular oil?

A. Of this oil, yes. By "original" I mean in its original condition as distinct from one of the distillates.

Q. When you distill oil for a certain period with rising temperature you throw off a certain portion of the oil between the two temperatures, do you not?

A. Yes.

Q. And it may be that taking a 34-degree oil you will throw off certain products by distillation between certain temperatures that will test 40, and other products 34 and others 28 degrees, and so on?

A. Yes.

Q. They averaging 34?

A. Yes.

Q. Now, you can take any one of those fractions and re-distill them, can you not, taking the 28-degree fraction, for instance, and you may get some oil which will test 34 and other oil which will test 28 and others, 23, in the same fraction?

A. You would possibly, but with qualifications—limits.

Q. Yes, of course, within certain limits.

A. I mean limits as to temperature.

Q. But as you take each fraction produced by an original distillation and distill those fractions you will from each get a production of a higher and lower degree?

A. Oh, yes.

Q. Than the gravity of the fraction which you are testing?

A. If there was much range of temperature in the original distillation from that fraction.

Q. And you can continue to re-distill fractions even obtained from the second distillation, with similar results, within
5008 certain limits?

A. They would be decreasing all the time.

Q. But you would not get a uniform gravity?

A. Not absolutely.

Q. And in order to get an oil which would not by distillation result in additional fractions of higher or lower degree you would have to distill and re-distill and re-distill again almost without limit, wouldn't you?

A. No, it could be limited in the first distillation by controlling your temperature, that is, limited within very small limits. You never can re-distill an oil of a certain fixed gravity and get an absolute definite gravity for the whole of the oil that comes over as you can with water, for instance.

Q. And then you would have to take a fraction of re-distilled oil, and then you would get results within certain degrees of gravity for the fractions resulting?

A. Yes, sir.

Q. And you would have to go through that process some time and through various steps before you would get what would be called a fixed oil as to gravity, would you not?

A. You never could reach a fixed point—the only way to do it would be to limit your temperature. You cannot go by the gravity at all. An oil distilled within limits of two or three degrees temperature coming over, and if it had a fixed gravity, the distillate, that distillate re-distilled would split—there would be very little difference in the degrees of the fractions of the distillation, because it would still come over practically within those limits of temperature, but if the limits were fifty degrees, you would keep on splitting all the time.

Q. And that would continue almost *ad infinitum*, wouldn't it?

A. Yes.

Q. You speak of "average analysis of Pennsylvania oil
5009 given by Stillman." Those averages you obtain from a work or article by Stillman, do you?

A. Yes, his *Engineering Chemistry*. It is a standard article—a standard in our profession.

Q. And where you refer to Pennsylvania oils, or tests of Pennsylvania oils, in your previous statement, which has been spread on the record, you refer to Stillman's results?

A. No, I have analyzed oils that were represented to me as Pennsylvania oils. I have never been able to trace them back to there. I

have such analyses and did not bring them because I did not suppose they would be competent, for that reason.

Q. But as far as your particular statement is concerned, which is your testimony to-day, where you speak of Pennsylvania you refer to Stillman's results with illuminating oils, heavy oils and so forth?

A. Oh, yes, that is Stillman's, that is continued from the first page of my statement to-day.

Q. And where you say "sample tested" you refer to the sample of the Consolidated Gas Company's oil?

A. Yes. That was the sample given me by Mr. Edgerton.

Q. And you state at the end "the conclusion reached by above test on this oil is, that it is not a straight Pennsylvania oil, but a mixture of Pennsylvania oil with oil from other districts." That I assume was your conclusion?

A. Yes.

Q. Not the conclusion of any of these books?

A. No; conclusions based on the tests and references consulted.

Re-direct examination by Mr. KIRBY:

Q. Such analysis as you made on that oil which is stated to you to be Pennsylvania oil confirms the analysis of Stillwell as set down in that statement, does it not?

A. Within practical limits. From the different districts they are not absolutely the same. It is supposed to be an average from
5010 the different parts of the district.

Recross-examination by Mr. MATHEWSON:

Q. Oil from different Pennsylvania districts differs somewhat in test?

A. Yes, oil from wells aside of each other will differ more or less.

Q. I see that no temperature is stated for the fourth and fifth distillations in your statement spread on the record. Will you explain the reason for the omission?

A. In the first place the putting down of the temperatures at all was simply for my own record; it has nothing to do with the analysis where you distill by fractions. And the reason it was omitted in the fourth and fifth was because the thermometer I had in at that time did not register over 360, I think, or 350. In a subsequent distillation you will see that the temperature has been carried out in all of the distillates.

Q. You did not take the temperature at Fahrenheit in this case?

A. No. I can convert any of those now if you want me to, if you want them in Fahrenheit, by a little figuring.

Q. Will it take you more than a moment?

A. No.

Q. Very good, suppose you do so.

(The witness now does some light amount of figuring, and then hands Mr. Mathewson a paper.)

Mr. MATHEWSON: I will read your answer now, as you have figured it, and you will kindly tell me if I am correct. The answer is 15.50 centigrade equals 60 degrees Fahrenheit; is that right?

The WITNESS: Yes.

Q. 268 centigrade equals 514.4 degrees Fahrenheit.
5011 330 degrees centigrade equals 626 degrees Fahrenheit.
150 degrees centigrade equals 302 degrees Fahrenheit.
300 degrees centigrade equals 573 degrees Fahrenheit.
360 degrees centigrade equals 680 degrees Fahrenheit?
A. Yes.
Q. When you spoke of your thermometer as registering up 350 to 360, you referred to centigrade?
A. Yes.

Mr. KIRBY: Mr. Master, that is all the evidence I have to offer now. Senator Page will be here with a witness for the State at 12:30. It is now 12:10. We can either wait, or if you prefer, and if it is convenient to counsel, we might adjourn now till 1:30, instead of adjourning at 1:00 o'clock to 2:15 as usual.

At 12:10 p. m. a recess was declared until 1:30 p. m.

5012 After Recess.

Present: The Master, Mr. Mathewson, Mr. Burr, Mr. Page, Mr. Kirby.

HENRY C. HAZZARD, called as a witness in behalf of the defendant, the State of New York, being duly sworn testified as follows:

Direct examination by Mr. PAGE:

Q. Where do you reside?
A. 196 Lenox avenue, New York City.
Q. What is your occupation or position?
A. I am a lawyer by profession; I at present hold the position of Secretary to the State Commission of Gas and Electricity.
Q. Do the various companies file with the State Commission of Gas and Electricity reports.
A. They do.
Q. Have you the statement that I asked you to prepare.
(Witness hands paper to counsel.)
Q. Have the Consolidated Gas Company and its associate companies filed such reports with the Commission?

Mr. MATHEWSON: I would like to know what you mean by "associate companies."
Mr. PAGE: Strike out "associate companies."

Q. Have the Consolidated Gas Company, the New Amsterdam Gas Company, the Standard Gaslight Company, the Mutual Gaslight Company, the Central Union Gas Company and the Northern
5013 Union Gas Company filed such reports?
A. They have not filed any such reports as I have here before me.
Q. Have they filed any reports for the year ending June 30, 1906?
A. No, sir.
Q. Has demand been made on them for the filing of such reports?
A. Yes.

Mr. MATHEWSON: Objected to as immaterial and irrelevant.
The MASTER: How is it material?
Mr. PAGE: It is not very material, as I see.

STATE'S EXHIBIT LLL.

Excerpts from Reports of Gas Companies for Year Ending June 30, 1906

Name.	Locality Supplied and Population.	Kind of Gas.	Cu. Ft. Gas Produced During Year.	C. P.	Gas Oil Used During Year (Gals.)	Average Cost of Oil per Gal.
Brooklyn Borough Gas Co.	31st Ward, Brooklyn, and Fish Terrace and Manhattan Terrace in 32d Ward. Population probably 20,000.....	Water	119,471,000	22 to 27	670,760	$0.03076
Kings County Lighting Co.	30th Ward, Boro. Brooklyn, and part of 31st Ward same Boro. Population	Coal & Water..	350,647,000	22.08	1,395,488	.03125
New York & Richmond Gas Company	1st, 2nd, 3rd & 4th Wards of Boro. of Richmond. Population about 65.000.	Coal & Water..	181,850,800	24	832,405	.026512
Queens Boro. Gas & Electric Co.	5th Ward, Boro. of Queens, Town of Hempstead, Villages of Lawrence, East Rockaway, Cedarhurst, Woodmere, Hewletts, Lynbrook & Oceanside. Population 8,000 to 12,000 in winter and 50,000 to 60,000 summer	Water	84,624,000	22	421,346	.0325
Binghamton Gas Works.	Binghamton & Lestershire. Population 48,000.....	Coal	20,273,100	20 to 21	487,653	.0350
		Water	134,587,100			
			154,860,200			
Mohawk Gas Co., Schenectady	Schenectady. Pop. 58,387.	Coal	76,914,246	18	398,460	.0358
		Water.....	104,405,144			
			181,319,390			
Power Co.	Newburgh. Pop. 26,500...	Water	68,699,600	22	274,981	.0325
Newburgh Light, Heat & Rochester R'y & Light Company	Rochester and Towns of Brighton & Yates. Pop. 188,530	Coal	313,653,400	20	2,018,807	.035
		Water.....	437,527,600			
			751,181,000			
Fulton Co. Gas & Electric Co.	Cities of Johnston and Gloversville. Pop. 28,517.	Water	79,208,400	22.43	316,808	.035

Q. Mr. Hazzard, do these reports give the population served by the various companies, the kind of gas they manufacture, whether coal or water gas, the number of cubic feet of gas produced during each year, and the candle power of gas, and the gas oil used each year, and the average cost of oil per gallon?

A. They do.

Q. What companies have you produced the reports of pursuant to my notice?

A. I have here the verified reports of the Brooklyn Borough Gas Company, Kings County Lighting Company, the New York & Richmond Company, the Queens Borough Gas and Electric Company, the Binghamton Gas Works, the Mohawk Gas Company, the Newburgh Light, Heat and Power Company, the Rochester Railway and Light Company and the Fulton County Gas and Electric Company.

Mr. PAGE: I have had Mr. Hazzard prepare a table. It would be the shortest way, probably, to put that right in if there is no objection.

Mr. MATHEWSON: You have not asked any question, have you?

Mr. PAGE: No, I submit this to you to see if you have any objection.

Mr. MATHEWSON: I will not have any objection to that
5014 method, but I shall object to the information which is included there.

Q. Have you prepared a statement from these reports which you have specified, showing the details that I asked you about?

A. I have.

Q. Is this the statement that you prepared? (Handing paper.)

A. That is the statement.

Q. Is that an accurate and correct transcript from the reports of the facts therein stated?

A. It is.

Mr. PAGE: I offer that in evidence.

Mr. MATHEWSON: Objected to as immaterial and irrelevant and incompetent; incompetent, not because it is not a true copy from the reports, but that a statement by any third party to some other third party *when* we are unable to have present and cross-examine on the statement of this first third party is incomplete as against us.

The MASTER: We had that up before, and that was recognized in the case of other evidence that we allowed. Of course that is to be taken into consideration in weighing the evidence, that you have no opportunity for cross-examination.

Mr. MATHEWSON: You can very easily see that we have no opportunity for cross-examination of these people who have filed these reports.

Mr. PAGE: Quite true, but they are official reports.

The MASTER: I will take it, as I have other similar evidence.

Mr. MATHEWSON: Exception.

Paper received and marked State's Exhibit LLL.

(Here follows State's Exhibit LLL marked p. 5014a.)

5015 Mr. MATHEWSON: I will ask to have these reports marked for identification and left with the Master.

Mr. PAGE: These are the originals.

Mr. MATHEWSON: Then we should have copies.

Mr. PAGE: I will have copies made.

The original reports were marked Complainant's Exhibits 261, 262, 263, 264, 265, 266, 267, 268 and 269 for identification, respectively.

Cross-examination by Mr. MATHEWSON:

Q. Under the heading, "Cubic feet produced during the year," does that refer to gas made or gas sold?

A. Gas made.

Q. Is there any separate report made of gas sold in this blank, do you remember?

A. Yes, sir.

Q. Will you turn to candle power, as to the Brooklyn Borough Gas Company.

A. Page 26.

Q. I find "candle power of gas supplied to consumers, 22 to 27"; do you know whether that is a city test or whether that is at the works?

A. I know nothing more than is contained there.

Q. And this does not state, does it?

A. No, sir.

Q. I see for the Brooklyn Borough Gas Company, gas oil used during the year is stated at 670,760 gallons. Do you know what kind or grade of oil that was? Is there anything in the report which shows?

A. There is nothing in the report to show.

Q. Now take the Kings County Lighting Company, coal and water gas 350,617,000 feet; have you a record of how much was coal and how much was water gas?

A. No.

Q. And the same is true of the New York & Richmond Gas Company, it is not?

A. Yes, sir.

Q. You have no record in your report, have you, as to the method pursued in making these tests for candle power?

5016 A. Some of these records state that information very briefly; take for instance, the Newburgh Light, Heat & Power Company report, which I pick up by chance; it states that the candle power was determined by jet photometers, and the test is made hourly.

Q. There is no statement in the report, of course, of the experience of the man who made the test, even with the jet photometer, is there, Mr. Hazzard?

A. There is not.

Mr. PAGE: In the Kings County Company report it is stated by reading on the bar photometer.

Q. And in the case of the Kings County Company there is no record in the report as to who made the test, or whether the individual who made it was experienced and competent, is there?

A. No, sir.

Q. You have the reports of a great many other gas companies in the State of New York, have you not?

A. Yes, sir.

Q. How did you come to select these particular reports to present here?

A. Well, I tried to pick out the reports of those companies operating in the largest cities in the State and producing water gas.

Q. Well, some of these companies produce coal gas as well, I observe.

A. Produce both.

Q. You did not produce the report of the Brooklyn Union Gas Company. That is the largest company except the Consolidated Gas Company in the State?

A. I did not.

Q. And the next largest city in the State is Buffalo. You have not produced Buffalo, have you?

A. The reports of the Buffalo companies are not yet filed.

Q. How about Rochester—that is here?

A. Yes.

Q. How about Syracuse?

A. The Syracuse report is not filed.

Q. Albany?

A. The Albany reports are not filed.

5017 Q. So that the largest cities have not yet filed their reports; is that correct?

A. That is substantially correct.

Q. Were you requested to bring the reports of companies which showed a low average cost of oil per gallon?

A. I was not.

Q. What was the character of the request which induced the production of these?

A. Senator Page saw me last Friday and we looked over the reports which I have brought here to-day, and possibly three or four reports in addition to these; the other reports were defective in certain respects or deficient.

Q. In that they did not show a higher cost for oil?

A. No, sir; in that they failed to show the amount of gas produced during the year, or failed to give some other information, and possibly the information in regard to the price of oil may have been higher, but I don't remember as to that.

Q. You did find in a great many of the reports filed by various gas companies throughout the State of New York that the cost of oil was higher than in any of these that have cited?

A. I have not, Mr. Mathewson.

Q. None?

A. I won't say none; in some instances they are higher; they run as high as 4.3 cents, I believe, if I remember; possibly higher, but to my memory they run as high as 4.3 cents.

Mr. MATHEWSON: Senator, there is no objection, I suppose, to my having access to the balance of these reports in the office of the Commission, is there?

Mr. PAGE: They are public records.

Q. There is no objection to that, is there, Mr. Hazzard, to our seeing them?

A. None at all, Mr. Mathewson.

5018 Q. All these reports which you have here to-day are for the year ending June 30, 1906?

A. Yes, sir.

Q. And your data taken therefrom of course covers the same period?

A. Yes, sir.

Mr. PAGE: We offer State's Exhibit ZZ for identification in evidence.

Paper marked State's Exhibit ZZ in evidence.

HENRY H. EDGERTON resumed.

By Mr. KIRBY:

Q. In making up the schedules which have been placed in evidence showing the amount of gas oil used at the Twenty-first Street Station by the Consolidated Gas Company and the candle power as recorded by the records of the company of that station, did you make schedules from the books of the company for December, 1902, December, 1904, and February, 1905?

Mr. MATHEWSON: Do I under- that the witness took these off from the books of the company?

Mr. KIRBY: Yes.

The WITNESS: I checked them off.

Mr. KIRBY: He has placed in evidence other schedules similar to these for a different period, and I intended at that time to place these in also, but I overlooked these at the time.

Mr. MATHEWSON: I do not understand quite how this witness examined our books for 1902 and 1904, which I thought were outside of the period which the Accountants covered.

The WITNESS: The book was marked as an exhibit. Those 5019 books were what we call ordinary carbonizing reports.

Mr. MATHEWSON: The books were offered as exhibits only covering the years specified, that is the nominal year and the actual year 1905, and were not exhibits at all for any other period. I do not know that there is anything here that would take much if any time to rebut, but I call the Master's attention to the fact that this is quite outside of the period covered by the exhibits or the period in which the Accountants were examining them. I do not think it should have been done.

The MASTER: Cannot it be stated in some way exactly from what books these were taken, so we will know about it?

Q. Do you remember?

A. The books are the reports of the manufacturing accounts kept at the works, as a general thing, and kept in duplicate at the central office, showing the amount of oil used, material used throughout, and the gas made, and quality of gas without any reference to the cost.

By the MASTER:

Q. What I want to get at is, was this the same book that contained the figures of that kind for the year 1905?

A. Yes.

Q. It contained the figures for a number of years, did it?

A. Yes, sir.

Mr. MATHEWSON: I offered the portion of the book in evidence as the record will show, covering the year 1905, at the conclusion of my case, so that there might be no question as to the original evidence being before the court; but the other pages were not offered at all, and they are not evidence, nor in evidence.

5020 Mr. PAGE: While the offer may have been limited he offered the book, he did not offer specific pages of it.

Mr. MATHEWSON: Yes, I did, Senator.

Mr. PAGE: You did not.

The MASTER: We have confined our inquiry with the single exception of the old real estate values, to the question of the operation for the year 1905. Now, if we are going to open up the vista of going into 1902, 1903 and 1904, at this last stage of the case——

Mr. KIRBY: I am going to ask no questions about it whatever.

The MASTER: The trouble is Mr. Mathewson may ask questions about it, and we do not want him going into court and asking for further time on the ground that you have opened up this new subject at this late day.

Mr. KIRBY: These are taken from their own exhibits in the case.

Mr. MATHEWSON: No, it is not an exhibit at all. On page 2217 I asked the following question:

"Q. Have you the station records of the Consolidated Gas Company for 1905, of the material used, and so forth? A. Yes."

That is the record which the witness produced.

"Mr. MATHEWSON, I offer in evidence the Fourteenth Street Station records, produced by Mr. Carter," I had asked him if he had produced them for 1905.

"I also offer in evidence the Forty-second Street Station record for 1905. Book received in evidence and marked Complainant's Exhibit No. 241.

"Mr. MATHEWSON: Of course, I only offer the year 1905.

5021 Some of these books cover a longer period, that is, some portions of them. I also offer in evidence part of the Forty second street record for 1905, which is contained in this volume." And so, while to save time at that time the particular pages were not stated, it was explicitly stated that the record for 1905 was offered only.

The MASTER: Under those circumstances I sustain your objection to two of these and overrule it as to the other. There is one here for

February, 1905, which I will admit, and the ones for December, 1904, and for December, 1902, I will exclude.

Mr. KIRBY: We take an exception.

Statement for February, 1905, received in evidence and marked State's Exhibit MMM.

Mr. KIRBY: I offer the other two, under the rule, as exhibits.

The MASTER: Mark the one that is admitted as an exhibit and the other two for identification.

Mr. PAGE: Are these excluded exhibits to be printed?

The MASTER: I suppose they will have to be.

Statement for December, 1904, marked State's Exhibit MMM for identification.

Statement for December, 1902, marked State's Exhibit OOO for identification.

Q. Mr. Edgerton, in your testimony of December 10th you gave the result of your computation as to the cost of a mixture of gas consisting of 775 cubic feet of coal gas of 14 candle power and 2,225 cubic feet of oil and water gas of 50 candle power, the result being a mixture which you said would give a candle power of over
5022 22 candle. In the computation, the results of which you gave on December 10th, did you use a long or a short ton of coal?

Mr. MATHEWSON: The witness stated he did not know whether he had a thousand feet of one kind of gas or 775 feet.

Mr. KIRBY: We will straighten this all out.

Mr. MATHEWSON: But you said he used 775.

Mr. KIRBY: Purporting to show——

Mr. MATHEWSON: No, he said he could not tell.

Q. Are you able to tell now whether your total at that time was one thousand feet or 1,225 feet?

A. Yes, I find the particular data as to which I was confused was as to whether 1,225 feet would give 22-candle power gas; therefore I had to look over the calculations I had made in regard to the necessary amount of rich oil gas to furnish 22-candle, and I found that it would require 225 of the thousand feet, not on the thousand feet, so that the mixture was based on 775 feet of coal gas and 225 feet of rich oil gas.

Q. But the figures which you gave were not based on a thousand cubic feet, but on 1,225?

A. They were based on—well, really on neither one; either would have required a correction to bring it to the cost of a thousand feet, for I had neglected to take into account the volume of the rich gas in the mixture.

Q. So that your mixture was not in fact one thousand cubic feet?

A. No, it was——

Mr. MATHEWSON: What is that?

(Question and answer repeated.)

The WITNESS: Well, the mixture was one thousand cubic feet, but I say I neglected to take into account the volume of the enriching gas in the calculation of the cost.

5023 Q. So that the calculation was not for a thousand cub-c feet of gas of more than the 22-candle power?

A. No, not accurately stated, it was not.

Q. Have you made a computation of the cost of one thousand cubic feet of gas, 775 cubic feet of which is coal gas and 225 feet of which is oil and water gas of a candle power of 50-candles, the coal gas having a candle power of 14-candles, and the resulting mixture having a candle power of 22.1 candles.

A. I have.

Q. And in such computation, have you used the long or short ton of coal?

A. My present computation is the long ton of coal; the former computation was based on the short ton.

Q. Have you made any other changes in units or cost per unit, or cost of labor in this computation to which you are now referring from that which you gave on December 10th?

A. No, I have simply corrected the December 10th calculation for the error in regard to considering it a short ton instead of a long ton and also correcting for the volume of the enriching gas. I find, however, there is a slight difference there in the repairs to apparatus and buildings, in looking the estimate over and comparing it with New York conditions or results obtained here in New York, I considered I had got that a little too high.

Q. And you have used what figure here in place of the one you used in your former computation?

A. I used three and one-half cents at present as against four and one-half in the former computation, that is per thousand cubic feet.

Q. Does this table which I hand you show the result of your computation?

A. Yes, sir; the result of my present computation, making the corrections I have referred to, is as follows:

5024 COST OF 1000 CUBIC FT. COAL GAS—14 C. POWER.

Soft Coal, $3.20 per ton of 2240 lbs.; average yield 5 2/10 cu. ft. per lb. = 11.648 cu. ft. per ton coal.

	S. R.
Cost for coal = 3.20/11.648 = 27.45	27.47
Cost for unloading = 11.2/11.648 per ton, .961	.961
Cost for labor, gas-making and purifying:	
Cost labor per ton .522c. 4.48	4.48
Cost Supervision—Supt. and foreman	.50
Cost repairs to apparatus, building	3.50
Cost purifying material lime, 56c. per bu. 23 M. c. f. per bu.	.75
Cost purifying material—Oxide	.25
Cost for oil and waste and sundries	.37
Cost for water	.17
Cost for general expenses at works	.50
	38.951

	lbs.		
Less residuals—			
For 66% coke and breeze	1478		
Less 20% for firing retorts	295.6		
	lbs.		
Salable	1182.4		
@ 4.00 per ton 2000 lbs.	2.3648	20.31	
	11.648		
Tar 13.45 gallons @ 5c		6.72	
Ammonia liquor 56/11.648		4.80	
		31.83	31.830
Cost			7.121

5025 COST OF 1000 FT. OIL AND WATER GAS, 50 C. P.

Oil, 888 gals. at 4.23	37.60
Gen. coal at 4.36 per long ton, using 20 lbs. per M	3.87
Boiler coal, 6 lbs. per M	1.16
Labor	1.78
Lime	.75
Oxide	.25
Oil and waste	.37
Water	.17
General expense	.50
Repairs	1.50
Sup.	.50
Cost	48.45

COST OF MIXTURE OF 775 CU. FT. 14 C. P. COAL GAS AND 225 FT. OF 50 C. P. OIL AND WATER GAS.

(Such mixture giving 1000 cu. ft. of 22.1/10 c. p. illuminating gas).

1000 cu. ft. of 14 c. p. coal gas costs	7.121
775 cu. ft. of 14 c. p. coal gas costs	5.5187
1000 cu. ft. of 50 c. p. oil and water gas costs	48.45
225 cu. ft. of 50 c. p. oil and water gas therefore costs	10.901
Total cost of 1000 cu. ft. of 23.1/10 c. p. mixture	16.419

The WITNESS: The change from short ton to the long ton involved several corrections in regard to the yield of tar and coke. In fact, it made a difference in the quantities throughout. It
5026 may be affected by the difference in the weight of a ton of coal.

Q. Do you consider this mixture of 775 cubic feet of 14-candle power coal gas and 225 cubic feet of 50-candle power oil and water gas as one which is practical to be made, do you not?

A. That represented in my opinion the extreme—the best results

that could be obtained by combining water gas and coal gas—oil gas and coal gas, yes.

Q. Have you also made a computation, having all the corrections throughout, of a mixture of 500 cubic feet of 16-candle power coal gas and 500 cubic feet of 28-candle power oil and water gas, the mixture making in your opinion a gas of over 22 candles?

A. Yes, sir, I have.

Q. And is this statement the result of your computation?

A. Yes, sir.

Q. What do you find the result of that computation to be?

A. I find the same to be as follows:

COST OF 1000 CU. FT. COAL GAS 16 C. P.

Soft coal $3.20 per ton of 2240 lbs.
Average yield 4.75 cu. ft. per lb.
=10640 cu. ft. per ton.

Cost for coal = 320/1064 =		30.08
Cost for unloading 11.2/10640 =		1.053
Cost for labor, gas-making and purifying—		
Cost labor per ton	$.522	
Cost labor per 1000 cu. ft. 522/10640 =		4.91
Cost Supervision—Supt. and foreman		.50
Cost repairs to apparatus and buildings		3.50
Cost purifying material—Lime, 56c. per bu.—23 M. cu. ft. per bu.		.75
Cost purifying material—Oxide		.25
Cost for oil and waste and sundries		.37
Cost water		.17
Cost for general expense at works		.50
5027		42.083

Less residuals—	lbs.	
For 66% coke and breeze	1478	
Less 20% for firing retorts	295.6	
Salable	1182.4	
At $4 per ton 2000 lbs =	2364.8	
Per M. cu. ft. gas made =	23648 / 10640	= 22.220
Tar 15 gals. per long ton at 5c. per gal. = per M. c. f. =	75 / 10640	= 7.049
Ammonia liquor, 56c. per ton = per M. c. f	56 / 10640	= .5263
		34.532
Cost		7.551

COST OF 1000 CU. FT. OIL AND WATER GAS 28 C. P.

Oil 5.5 gals. at 4.23	23.265
Gen. coke at 4.48 per long ton, using 22 lbs. per M	4.400
Boiler coal, 6 lbs. per M	1.160
Labor	1.780
Lime	.750
Oxide	.250
Oil and waste sundries	.370
Water	.170
Gen. expense	.500
Repairs	1.500
Supervision, etc	.500
	34.645

5028 COST OF MIXTURE 500 CU. FT. 16 C. P. COAL GAS AND 500 CU. FT. 28 C. P. OIL AND WATER GAS.

(Such mixture giving 1000 cu. ft. of 24 c. p. illuminating gas, 2 c. p. extra due to lime purification).

1000 cu. ft. of 16 c. p. coal gas costs	7.551	
500 cu. ft. of 16 c. p. coal gas costs		3.7755
1000 cu. ft. of 28 c. p. oil and water gas cost	34.645	
500 cu. ft. of 28 c. p. oil and water gas cost		17.3225
Cost of mixture		21.0980

Q. I notice that in this computation for this mixture you use more oil for the thousand cubic feet of water gas than you did in the other mixture, the other mixture being 50-candle power oil and water gas. Why do you use more oil in this mixture?

A. Well, I think that it requires more oil to bring water gas to the standard than it does coal gas.

Cross-examination by Mr. MATHEWSON:

Q. I find that the page of your memorandum book, Complainant's Exhibit 258 for identification, is headed "Based upon enriched coal gas, with only cost of coal gas—improved works;" is that right?

A. Yes; that was a mere memorandum for myself.

Q. I understand, but that contemplated therefor enriched coal gas made by improved works under the assumed conditions which you testified to, didn't it?

A. Yes, sir.

Q. Now let us look at your testimony to-day in comparison with your figures given at that time and appearing on that page of
5029 your memorandum book. You figured then, you say, the short ton?

A. Yes, sir.

Q. And you have bituminous coal at $3.20 per ton?
A. Yes.
Q. I see that you still keep $3.20 per ton as the price for coal, although you have increased the amount to 2240 pounds; is that correct?
A. Yes, sir.
Q. Well, if a short ton of coal is worth $3.20 at that time, a long ton of 2240 pounds would be worth something more than 10 per cent. additional, wouldn't it?
A. Yes, but I took this price per ton from the Company's—from what the Company paid, and as they buy by the long ton I did not increase it, naturally. I saw I had made an error in taking their price based on a short ton, and we are used in the West to basing everything on a short ton.
Q. Well, you have the yield per ton in your statement as 10,600 feet, while in your present statement you give the yield as 11,648 cubic feet per ton. How is that?
A. Well, that is simply due to the increased number of pounds. That is 2240 pounds. That is about the same yield per pound; I think it was 5.2.
Q. That was with the oil added, wasn't it?
A. No, that was just the——
Q. Wasn't that after the addition of the oil gas at Twenty-first street?
A. No, coal alone.
Q. Did you find any such record in the Company's statement that it would average about 11,648 cubic feet per ton?
A. Yes.
Q. From their coal?
A. Yes.
Q. Do you mean to say that was the Company's average, 11,648 feet per long ton?
A. I think it was 11,719; I think it was.
Q. Average at Twenty-first street before any oil gas was added to it?
A. Not at Twenty-first street, but at Fourteenth street.
5030 Q. Well, at Fourteenth street—I should have said at Fourteenth street in my previous question. "Cost of labor per ton 4.48 cents;" what labor is that?
A. That's all, charging and drawing and handling coke.
Q. What rate of wages did you contemplate in that figure?
A. $1.75 and $2.50; $2.50 for the gas makers, high-priced men; $1.75 for yard men and such as were engaged in less skillful occupations.
Q. "Superintendent and foreman, .5;" what did you assume the salary of the superintendent and foremen to be on that computation?
A. Well, that would provide for a number of foremen and a general superintendent, and amounts on the whole output to about $50,000 a year. I put that as adequate to keep the works supplied with foremen and superintendent.
Q. Before you allowed for repairs to apparatus and buildings, 4.5 cents. You have now reduced that to 3.5 cents. Have you any ex-

hibit before you now that you did not have before you when you answered and stated it was 4½ cents?

A. I have the same exhibits, but I have not examined them quite as minutely, and in looking over the cost of repair to apparatus and buildings through the various exhibits, it seemed to me I had got my figure excessive.

Q. You figured out, therefore, a cost before deduction of residuals of 38.951 cents, did you not?

A. Yes, sir.

Q. Now when you say in deducting residuals "For 66 per cent. coke and breeze," what do you mean exactly by that? 66 per cent. of what?

A. 66 per cent. of the weight of the coal is the usual average of coke and breeze on the various gas coals used in Pennsylvania.

Q. Less 20 per cent. for filling retorts?

A. That should be "firing" retorts.

5031 Q. Do you mean to say twenty per cent. of the 66 per cent., or twenty per cent. of the original one hundred per cent.?

A. Twenty per cent. of the 66.

Q. That is one-fifth of 66 per cent. off?

A. Yes.

Q. "Salable $4.00 per ton, two thousand." You use the short ton in that case, do you not?

A. Yes, I use that in regard to the value of coke, because most of the figures I have had in regard to the matter of coke are based on the short ton, or rather on the bushel, and converted into short tons. I always endeavor to sell coke by the measure rather than by the weight.

Q. That is $4.00 per ton for all the coke produced except that used in firing retorts?

A. Yes.

Q. Isn't it true that ten per cent. of coke is breeze, or something like that?

A. No, that would be a large percentage of breeze, rather large, I think.

Q. Then if you get ten per cent. breeze out of the coke, that would not sell for more than one dollar a ton, would it?

A. Well, I think they will use and get the full carbon value in using the breeze around the works. Even with the breakage of the coke it is not all inferior fuel, if it is properly handled, and you can use that percentage at the works and get the full value.

Q. Have you assumed, therefore, that the twenty per cent. taken out of the production of coke for firing retorts will include all the breeze?

A. No, sir, not all the breeze; just its ordinary percentage. The firing in this case is done in the generator producing the gas first, and there is no loss practically there. That can all be drawn right from the retorts into the producers.

Q. I am reaching this point; part of this coke is breeze and will not bring $4.00 a ton if it is sold; that is conceded, I suppose.

A. Yes.

5032 Q. Now, I am asking you whether you assume that no part of the coke sold is breeze?

A. No, I don't think you could get full value with the breeze. The idea of this estimate is that the breeze could be used in the producers or in the boiler fires.

Q. Then your idea is that it would be used by the company and would not be sold, and in that case you would have to deduct something from the amount of your coke sold, wouldn't you?

A. No, whatever is used by the company—I consider that a sale, that is, it is charged at the same rate as coke charged and handled, just the same as coke sold to the operation of the works—you have to have it enter into your accounts in some fashion, and therefore it would be charged to operation at the same—well, that is the total value for that purpose anyhow.

Q. Then all the coke made would be charged into the cost of gas at four dollars, wouldn't it, on that theory?

A. Well, it is practically, because if you did not have that twenty per cent. deducted from the coke in order to arrive at the salable coke you would have that much more. It is practically charging it to the——

Q. Let me see if I understand you. After you have deducted the twenty per cent. of the 66 per cent. of coke and breeze for firing retorts you still have left a certain amount of coke and breeze; that is right so far, isn't it?

A. Yes.

Q. And you have put down "salable at four dollars a ton, two thousand pounds." I understand you to say that that is not to be sold, but is to be used by the company or that some part of it is to be used by the company?

A. Yes, the breeze part could be used. I think that is perfectly available for the generators.

Q. You think it should be charged to the company if it is
5033 so used in its manufacturing cost at four dollars per ton for the breeze?

A. Just the same as fuel value, as such.

Q. But you have not included this amount in your cost of gas at all, have you?

A. It is the same thing, deducting from residuals. If I had not deducted that twenty per cent. you would have had just that much more coke and I would have turned right around and——

Q. I am not talking about the twenty per cent.; I am talking about the proportion of what is left after the twenty per cent. is taken out, which is breeze?

A. No.

Q. You have not included that in your cost of gas at all as you would have to if it were used by the company, have you?

A. That I think was included in the boiler fuel, yes. There was some charge there for boiler fuel.

Q. Show me the item which includes that, Mr. Edgerton. Do you mean to say that it was used for boiler fuel in making the oil gas?

A. The boiler coal is six pounds to the thousand.

Q. Boiler coal?

A. Boiler fuel or coal.

Q. Do I understand now that you want to change your statement in here under the "cost of a thousand feet, oil and water gas, 50 candle power," from "boiler coal" to boiler fuel?

A. Well, I have considered both coke and coal fuel. I think they are interchangeable.

Q. Oh, well, that may be. I am taking your own terms. I find under the heading, "cost of a thousand feet, oil and water gas, 50 candle power," the expression "boiler coal." Now I want to know whether that is coal or whether it is something else?

A. Well, we use coal or coke and screenings for boiler fuel right along every day.

5034 Q. But I find in this statement you have very carefully specified coal in one place, coke in another place and breeze in another place. You have distinguished them. Now I want to know whether this item, under the "cost of a thousand feet, oil and water gas, 50 candle power," of "boiler coal" is correct or whether you want to change it so as to read differently?

A. You might make it fuel instead of coal.

Q. I am not going to do anything. I want to know whether you want to make any change in that regard?

A. I don't see any use for it.

Q. Then the coke is not included under the item "boiler coal," is it?

A. I wouldn't say it was exclu-ed.

Q. Well, is it included?

A. Well, as far as that is concerned we use it I say with whatever comes to hand. If we have screenings and breeze and coal it is put into the use of the boilers or into the use of the cupolas or generators indiscriminately.

Q. I will ask you again this question: under the term "boiler coal" do you mean coal, or do you mean in whole or in part breeze, screenings?

A. I meant fuel of any kind that was useful for a boiler.

Q. But in relation to the previous statement where you say you have some breeze left that is not worth for sale in the market four dollars a ton, you suggested it might be used for boiler fuel. Now, I ask you whether this item "boiler coal" contemplates the use of that breeze as boiler fuel?

A. Yes, certainly we intended to use the breeze as boiler fuel.

Q. Then "boiler coal" does not mean boiler coal but boiler fuel, is that right?

A. Fuel and coal are used indiscriminately.

Q. Well, what does it mean here?

A. It means boiler fuel, that is what it means.

Q. Very good. Now, under this same heading, "cost of a thou-

5035 sand feet, oil and water gas, 50-candle power" we have generator coal at $4.30 a long ton, using twenty pounds per thousand. Have you figured out to see whether twenty pounds per thousand does not mean 100 per cent. efficiency for that

fuel, assuming it to be solid carbon and without any waste whatever even for ash?

A. No.

Q. Have you figured that out?

A. No, I know what can be done with it.

Q. Well, have you made any computation to find out whether solid carbon with no ash used at an efficiency of 100 per cent. would be any thing better than twenty pounds per thousand?

A. Why, running only half the time I made it for twenty-eight pounds in little Danbury, and I thought twenty pounds was a liberal allowance here.

Q. Now, I want you to show any place where you have used twenty pounds only per thousand for generator coal, the results that you have got right here; let us have the place.

A. I say I have used the average of the month, running over half the time or twelve hours a day, twenty pounds a thousand, for making rich gas.

Q. Making rich gas such as you use?

A. Yes, making rich gas. It does not take anything like the amount of coke per thousand to make rich gas that it does to make poor gas.

Q. Isn't it fundamental that the more you make blue gas the more fuel you have to put into it?

A. Yes, that is just the trouble. This is not blue gas; it is 50-candle power gas. There is nothing blue about that.

Q. Do you mean to say this rich gas you use requires less fuel?

A. I mean exactly that. A great deal less, that is what is the matter.

Q. Have you within the last year or so handed to a Mr. Miller certain figures and estimates relating to the experience at Danbury, and if so will you be good enough to look at those sheets and
5036 see if they are in substance the sheets that you handed to Mr. Miller?

A. Yes. There is coal per thousand (indicating).

Q. Just answer the question?

A. Yes, certainly.

Mr. MATHEWSON: I ask to have these sheets marked for identification.

Marked for identification Complainant's Exhibit 270.

Q. Now will you look at the last sheet, which is headed "figures furnished by H. H. Edgerton," and say whether the coal per thousand in the carbonized report of the Danbury Gass Works which you say uses this system does not run from 28.08 to 45.72 for the year ending May 1, 1905, according to that statement?

A. Yes, sir, running half the time or less.

Q. Well, that is the fact, isn't it?

A. Yes; 28 pounds.

Q. One month, November, 1904, this would appear to be, you get 28.08?

—. Yes, sir. How many hours was that?

Q. And the average is 34.25, isn't it, per thousand feet?

A. Yes, sir, for the year, running 3,400 hours total for that year?
Q. Well, I am talking about per thousand feet?
A. Well——
Q. And it appears that the candle power at Danbury, average for a year, instead of being 44, as I understood you to testify, is 35.76 candle, isn't it?
A. Yes, that was with a two-foot burner, not tested by Mr. Love.
Q. Well, these are figures you gave to Mr. Miller?
The MASTER: Yes, he said so.
Q. And you were conferring with him with a view to showing him how favorable a process this was and getting him to in-
5037 stall it at another place, were you not?
A. No, sir; no, no.
Q. Were you?
A. No, sir; there wasn't a word said about installing at any other place, or any other process.
Q. What was the object of giving these to Mr. Miller then?
A. I directed those to Mr. Bradley. I don't remember Mr. Miller in the case.
Q. Mr. Bradley, the chief engineer of the Consolidated Gas Company?
A. Yes, I don't remember addressing anything to Mr. Miller.
Q. Weren't those figures delivered in reference to a proposed plant at Hyattsville, near Washington, with a view to the possible installation of a plant there of the character of the plant at Danbury?
A. Well, those figures——
Q. Well, wasn't that the fact?
A. I gave those figures to several people, but I suppose these are the figures that came through Mr. Bradley. I don't know how you got hold of any Hyattsville.
Q. Weren't these delivered to them in connection with a proposed plant at Hyattsville, and weren't they delivered to Mr. A. S. Miller, general manager of the Consolidated Gas, Electric Light and Power Company of Baltimore?
A. No.
Q. And who was also president of the Hyattsville Company?
A. There is no Hyattsville Company that ever I heard of. That is, the papers were given to Mr. T. J. Hayward, of Bartlett, Hayward & Co., and he turned them over to Mr. Miller, and said go down and see Mr. Miller and explain them to him, and I went down there and explained the figures to Mr. Miller.
Q. And they were given in connection with the proposed plant at Hyattsville?
A. Yes. Not proposed to Mr. Miller, however.
Q. Now, your charge at Danbury to consumers is figured out on a basis of 44-candle power in making your adjustment, isn't
5038 it?
A. Yes; 17.6, yes, 44-candle.
Q. And is this a true statement with these figures upon it, a true statement of the candle power of Danbury for the year ending May 1, 1905?

A. Yes, sir, the tests are very carefully made, but they are made with a two-foot burner, as I tell you, instead of a 5-foot.

Q. Isn't the two-foot burner the most favorable burner to test with as far as candle power is concerned, for the gas?

A. Oh, no, I can bring you forty-five candles out of the same gas by simply putting on a large burner and putting it under the same pressure or a little more than the inspector does in New York City; I can get forty-five candles out of it readily.

Q. More pressure?

A. No, by less pressure.

Q. Does it not produce a smoky gas under less pressure?

A. No, not any smokier than the Consolidated gas, so far as I can determine.

Q. I do not ask you to make comparisons, does it or doesn't it produce a smoky gas?

A. No, a very brilliant, clear flame; a very fine flame, that I don't think would give off any smoke in ordinary use.

Q. Then you figure out for your coal gas, fourteen candle power, residuals amounting to 31.83 cents?

A. Yes, sir.

Q. Which you deduct from 38.951 cents to leave an actual cost of coal gas in the holder of only 7.121 cents; that is correct, isn't it?

A. That is right.

Q. On the other hand, the cost of the oil and water gas upon this assumed basis you compute at 48.45, is that right?

A. Yes, I think that is correct.

Mr. KIRBY: Per thousand cubic feet?

Mr. MATHEWSON: Per thousand cubic feet always.

5039 Q. And you get the total cost of a thousand cubic feet of 22.1 candle power at only 16.419 cents in the holder, is that right?

A. Yes, that is right.

Q. And you really think that it is feasible and practicable to manufacture gas in the City of New York, such as we have to deliver here in the holder at that figure, is that right?

A. In those proportions, yes.

Q. Well, these proportions are the ones you assumed in the computation?

A. Yes.

Q. They are not mine. And this you understand allows only one-tenth of a candle above the figures required by law?

A. No, there are about two candles above. They allow there for the mixture as proposed, but I take out by the use of lime two per cent. of carbonic acid which usually accompanies the gas, and that would account for about two candles difference. In other words, by taking out the carbonic acid to the amount of two per cent the candle power would be increased. Those figures are based on the candle power with the carbonic acid remaining in the lime, .75 of a cent is intended to take it out.

Q. Do you mean to say that the cost that you have allowed for purification is sufficient if you were going to take out the carbonic acid?

A. Yes, I think so. The material.

Q. And is this 22.1 candle power at the works of the Company or at the station of the City, a mile from the works?

A. That is at the works.

Q. What amount of lime do you allow in this purification including the extraction of the carbonic acid?

A. I think it was about 25,000 feet to the bushel of slaked lime, something like that.

Q. And how much a bushel?

A. I have forgotten. I haven't the price of lime, the strength of it, how much it would lose and how much it would swell in slak-
5040 ing. I think it is shown down here as 56 cents. That is not the slaked lime, though. That is unslaked lime.

Q. What wages did you allow for labor in the oil gas computation of 1.78 of a cent?

A. Well, I had that a little higher, but after consulting the records of the Consolidated Company and taking into consideration the large amount of gas that would be made I cut down to within a half a cent of there cost; it is a half a cent more than the cost of the Consolidated at present.

Q. For labor in producing what kind of oil gas?

A. Labor in producing oil and water gas. This is really a cheaper gas, as far as labor is concerned, as far as I can see, than the other forms of gas.

Q. Did you figure on this oil gas, in supplying New York, to be manufactured at one works or in various works at different points?

A. It ought to be made at one works really if you want to do it right.

Q. Is that what you figured on in this estimate?

A. Yes, it could be done at the same works in such a large scale, but the mixing would present some difficulties. However, if they would mix them thoroughly before they entered the holder it would be all right. If they let it get to the holder and attempted to mix it in the consumers' pipes, or the mains, it would have inequalities.

Q. Well, now, I see that in your statement dealing with the mixture consisting of 16-candle power coal gas and 28-candle power water gas you figured on the cost of the coal gas to be 7.51 cents and of the oil gas to be 34.645 cents, and the cost of the mixture in the holder to be 21.098 cents per thousand. That is about five cents higher than the result from mixing 14-candle power coal gas with 50-candle power gas?

5041 A. Yes, I think that would be a less economical mixture than the other on account of the——

Q. Then the more water and oil gas you used and the less coal gas, the higher the cost of the mixture, is it?

A. Yes, undoubtedly; it takes less oil to illuminate coal gas than it does to illuminate water gas.

Q. Now, I see on your second statement under "Cost of one thousand cubic feet coal gas, 16-candle power," you stated that the average yield is 10,640 cubic feet per ton of coal.

A. Yes.

Q. The coal costing $3.20 per ton, but in your former statement you say that the coal costing $3.20 per ton you assume will produce 11,648 feet, or more than one thousand feet per ton more; how does that happen?

A. Well, in that case, as always happens in coal gas, the higher we drive the yield the more we exhaust the yield. The lower the candle power of the gas. In one case I am making 14-candle power gas at which I got 11,648, and the other making 16-candle power gas and cutting off the yield we get the higher candle power of 16.

Q. You mean to say that without adding to the volume of the gas by oil gas or water gas you can simply drive out of the coal 11,648 of 14-candle power gas or 10,640 cubic feet of the 16-candle power coal gas, taking the same coal, do you?

A. Yes, that would be about the way it would run. I have made many experiments in regard to that; it is a good many years ago, but they hold, I think, just as good now.

Q. When you are speaking of candle power, what burner did you use in computing the candle power that you have used in these statements?

A. The London Argan D.

Q. You do not use a flat-frame burner such as is used in New York by the City testing inspector?

5042 A. No. At about 18 to 19 the two burners give the same result.

Q. Did you get your 22.1 on the Argand or the flat-frame, or do you contemplate getting it on the Argand or flat-frame?

A. On the flat-frame. The Argand would not give 22 with that gas.

Q. Now will you look at Complainant's Exhibit 258 for identification, which was the page of your memorandum book, and say whether your 36.12 which you testified to the other day should not be 39.12? In other words, didn't you make a mistake of three cents in the addition of the figures that you took?

A. No, that was scratched out. It was part of it—the addition comes to 36.12. This figure was scratched out because the labor of gas purifying was—it was opposite that line, but it does not foot up—you will see it foots up 36.12, leaving that out.

Q. Leaving out the three cents which appears in there?

A. Yes. It is a duplication.

Q. And isn't it true that in connection with the repairs to apparatus and buildings you stated in your previous testimony 4½ cents as the amount, applying it to 225 cubic feet of gas?

A. No, that was applied or intended to be applied to the whole mixture.

Q. But it was not in the figures on that page, was it?

A. Yes; repairs to apparatus and buildings is intended to cover both coal gas and the oil gas, and so shows here.

Q. Well, if you have labor in gas making and purifying, three cents, meaning a thousand feet, as you stated in first computation and crossed it out, then for 225 feet it would be something like one-

quarter of three cents, wouldn't it, or .75 of a cent instead of .3 of a cent?

A. Yes, that rose in this way: I took the cost of making
5043 a thousand feet and taking the cost of labor at three cents, from my judgment, and looking over the data of the Consolidated Company I found owing to the large product they made so much less, I thought I had that too high really and cut it down.

Q. Now, the repairs in works where machinery is used for handling coal would naturally be larger than in works not equipped with so much machinery and where hand labor was used, would they not?

A. Yes. I think I allowed for that.

Mr. MATHEWSON: That is all. I would like to have that page which is marked Complainant's Exhibit 258 for identification printed, if these exhibits for identification are to be printed.

Mr. PAGE: Are you having the Danbury record printed?

Mr. MATHEWSON: Yes.

Mr. PAGE: What I had marked for identification and had printed were some papers which were offered in evidence. Now here are some memoranda Mr. Mathewson produces from his pocket and asked the witness some few questions about, they are marked for identification and he wants them printed. I really should insist on his putting them in evidence, he having cross-examined the witness on them. I do not see they are proper in the case at all.

The MASTER: Isn't that so, Mr. Mathewson?

Mr. MATHEWSON: I rather think it is so. I probably shall offer them later in the day. I will withhold offering them until I reach my case, which would be more in order. I offer in evidence, however, the page of witness's book, Complainant's Exhibit 258 for identification, so that it may go in at this point.

5044 The MASTER: Was that particular page Exhibit 258, or was the whole book Exhibit 258?

Mr. MATHEWSON: Just that one page.

Received in evidence and marked Complainant's Exhibit 258, December 26th, 1906.

Redirect examination by Mr. KIRBY:

Q. Referring to Complainant's Exhibit 258, we find the statement "labor, gas making and purifying, three cents." Do I understand there was a memorandum of yours and that through the three-cent item you have drawn that line for the purpose of erasing it?

A. Yes.

Q. And that that cost is included in other items and not added in that total of 36.12 cents appearing immediately thereunder?

A. Yes, sir.

Q. Opposite the item "Tar, 12 gallons at 5 cents" I find .600, then on the same line 5.65, then on the same line .56?

A. Well, that is all an error there. That 56 is on the basis—is incorrect—some figuring I did here on the jump.

Q. And which is not the correct conclusion?

A. No.

Q. What is the correct conclusion there?

A. I think it is 5.65, as originally put down.
Q. Is that also true of the item "Ammonia Liquor?"
A. Yes, sir.
Q. Where the figures 4.71 have been changed to .47?
A. Yes.
Q. So that your original statement of 23.26 cents was only in error and that you used the short ton of 2,000 pounds instead of the long ton of 2240 pounds and did not have a mixture of only 1,000 cubic feet of gas?
A. That is true. I had not allowed for the bulk of the enriching gas nor have I allowed for the long ton; I have a short ton, and with those two exceptions that is very nearly accurate. There
5045 may be some trivial decimal errors there in arithmetic, but it is substantially correct.
Q. Now in your statement of the cost of 1,000 cubic feet of 14 candle-power coal gas you state the yield of gas from a ton of coal to be 11,648, and in your statement of the cost of 1,000 cubic feet of 15 candle-power gas you state your yield to be 10,640 cubic feet from a long ton of coal. This yield is based upon the result of your investigation as to the yield from coal, is it not?
A. Yes
Q. And when you state you have referred to the figures of the Consolidated Company you did so only as a matter of reference and for confirmation, did you not?
A. That's all. They seem to agree very well with my own experience in regard to the yield, correctly given.
Q. And you consider that from a ton of coal it is possible to obtain coke which is salable, that is, contain none but a very small proportion of breeze, which will consist of that which is left after deducting 66 per cent. of the ton and deducting 20 per cent. therefrom for firing of retorts?
A. Yes. That is possible. In fact, it has been done in practice.

Recross-examination by Mr. MATHEWSON:

Q. Do you mean to tell me that you confirmed from the Consolidated records the proposition that from 20 pounds of generator coal you get one thousand feet of gas?
A. No.
Q. You did not find any such result there, did you?
A. No.
Q. Well, I want you now, you are so particular about this, to give me a company that is doing that now, getting one thousand feet of gas from 20 pounds of coal; just give me the name of the company doing it; I mean of this water oil gas?
A. Well, of the water gas, I consider when I am operating
5046 at 28 pounds and running only half the time and keeping the fire up in the meantime, and with a loss of radiation, that twenty pounds would be an ample allowance, running all the time.
Q. But we have seen that the average at Danbury, according to this statement you presented, showed nearer thirty-five than twenty-eight pounds for the year.

A. Yes, but it is running only a small portion of the time; that is, it is running less than half the time.

Q. Well, the average so far as it was running—you have referred to the fact it was only running half the time—was not twenty-eight and a fraction, but was nearer to thirty-five, according to this statement, wasn't it?

A. Yes, but the management——

Q. Well, that is the point. Now, will you show me any company producing this amount of gas with the use of only twenty pounds per thousand feet of gas produced, not reasoning from what some company is doing, or as to what they might do under other circumstances, but give me the name of one company producing this kind of gas and using only twenty pounds of fuel per thousand feet under the boilers?

A. Not under the boilers.

Q. No, I mean generator coal. Strike out under the boilers.

A. Well, you give me works running twenty-four hours, and I will do it.

Q. I ask you to name to me the works that are doing this.

A. I didn't know of any works running twenty-four hours doing it, or twenty hours would do it. Have you got those figures there as to the twenty-eight pounds? No, this twenty-eight pounds in November was only running on 360 running hours during the month.

Q. Yes, I understand that you reason something from that.

A. Yes, and you can reason a good deal from it, too.

5047 Q. Too much, we think. Did they balance up the coal pile at the beginning and end of the period to which you refer, November, 1904?

A. Yes, and the gas has to stand the shortage.

Q. What?

A. The gas account has to stand all the shortage besides because of the electric——

Q. That may be, but I am asking you if for that particular month they balanced up the coal pile at the beginning and end of the month so that they know how much they use exactly to a pound or a few pounds?

A. Pretty near it.

Q. I find in this statement, Complainant's Exhibit 270 for identification, that the amount of coal used for the year has been stated, but not for the separate months, the balanced coal.

A. It is oil I guess you are talking about, isn't it? I don't see any balance about coal. I see the oil is stated; the inventories are taken at the end of the fiscal year of the coal and whatever shortage comes in there comes on the gas.

Q. I understand that is so for the year, but you do not balance your coal pile each month, do you?

A. No, we could not do that.

Q. Well, you don't do that, do you?

A. Stock on hand is not taken each month, but it is weighed carefully into the generators and they use more than ordinary care in

making that out. I watched it frequently and have had weights put on the scales and tested them; in fact, I don't know a place——

Q. At Danbury?

A. Yes. I don't know a place where as much care is taken as you will see there in regard to oil. Shortage on oil is stated to be due to the clogging up of the oil gauge pipes. It was quite a while before I found out what was the matter; and there is a great deal of care exercised in their quantities and weights.

5048 By Mr. KIRBY:

Q. You desire to give an explanation of how a decreased quantity of coal can be used in making this very rich oil and water gas. You may so do.

A. The chief function of the fuel in making a rich oil gas is simply to decompose the oil vapors into gases. There is very little coal used except for fuel. But the function of coal as a fuel in making water gas is not only to furnish the heat for the decomposing of the water, but also all the carbons for the carbonic oxide and carbonic acid entering into the gas; and it is found by the most ordinary observation and tests that while one takes a very moderate — of heat to decompose the oil gas, that a very large quantity is taken to make the water gas part for that reason. It not only serves the decomposing, but also has to form the body of the gas. In the case of oil, the oil forms the body of the gas and not the coal.

By Mr. MATHEWSON:

Q. Didn't you say somewhere in your testimony that this twenty pounds per thousand feet was for blue gas?

A. No, if I did I misunderstood you; I didn't mean to. Blue gas takes a great deal more than twenty pounds per thousand, there is thirty per cent. of blue gas in it, or about that.

Q. How many pounds of coal would be required for all blue gas with no oil in it at all, Mr. Edgerton?

A. Well, there are various—it is according to how it is made; there are various processes. Some come as high as thirty thousand feet.

Q. I am getting not claims, I am getting your views on the subject; give us your own views.

A. Well, I don't remember of making any blue water gas alone in any of the works, except occasionally just for getting samples
5049 to test. It is made always in a mixture with the coal gas, or oil gas, and the only way we arrive at it is by analysis of the gas as to what percentage of blue gas there is in it. I used to make them entirely separate and record in a separate meter; but they were still made in the same vessel; but there are processes depending on blue gas alone; I think about thirty thousand feet to the ton is the highest that has ever been got out, and I rather doubted whether that was possible.

Q. To the long or short ton?

A. The long ton I believe that was. They made it down in——

Q. You never had any experience yourself, you say, in getting out blue gas?

A. I investigated works where they were doing it, but I never ran them. I went down to Bridgeport and got samples of gas; they were making it there and I had samples from various points, I don't remember just where. I made analyses of them and had statements of the cost of making it.

Mr. PAGE: The point having been raised as to these State's Exhibits NNN and OOO which were copied from the carbonizing book of the Twenty-first Street station, from that portion which Mr. Mathewson states is not in evidence, I asked him whether he would produce those books so we could offer those particular parts. I understand he is willing to accept these copies as being correct copies, but insists upon some objection that if the books were here they would be immaterial and irrelevant. Is that it?

Mr. MATHEWSON: Yes, I have objected to Exhibits NNN and OOO on the ground they are outside of the period under consideration and are not taken from any exhibit in evidence, and that that period was never offered in evidence, and I insist upon that objection. I do not make the objection that these are not accurate transcripts
5050 from the books, assuming, of course, that we have an opportunity to verify it and call it to the Master's attention if we find it to be incorrect. I think that covers it.

The MASTER: What is the matter with that?

Mr. PAGE: The only thing then is I think they should be marked in evidence the same as if we produced the book here. We would have a right to subpœna the book and offer this testimony.

The MASTER: I understand the proposition is that these sheets shou-d be treated here as if they were the original books, and as I understood, I excluded that.

Mr. MATHEWSON: Yes.

The MASTER: What do you gain by marking the original book?

Mr. PAGE: I understood you excluded it because it was not part of the exhibit.

The MASTER: No, but because it included part of the year 1902 and 1904, and the part that Mr. Mathewson introduced of that book was simply the year 1905.

Mr. PAGE: But that makes it competent if we want to offer another portion of that same book, does it not?

The MASTER: That may be, except that throughout this case we have kept clear of going into periods anterior to the year 1905, for the purpose of not broadening the issues to be tried.

Mr. PAGE: I know that has been the contention of the Consolidated Gas Company, that we could not look at anything except for the one year, but I do not so understand the issue, but that it was what it cost them to make and sell gas, and if they put in evidence their carbonizing record for the year 1905 and claim that they have to use a higher grade of oil and we can show by the same book that in 1902 and 1904 they used this oil and produced candle
5051 power results from a different oil, I think that bears on the statement that they have put in already. It is a basis of comparison.

The MASTER: Well, it may be, but I do not see what you gain by having the original book here under this situation.

Mr. PAGE: I do not if they are willing to waive the production of the book.

The MASTER: He does not make any point about their being copies.

Mr. PAGE: Yes, he says they should not have been copied at all.

The MASTER: I do not see what difference it makes. It is excluded anyway. If you had the original book here I would exclude it just the same. If you gentlemen have taken as long as you have to analyze the accounts for 1905, if you were to go back through all these books it would take until 1950 to analyze them.

Mr. PAGE: That is true, if we attempted to go through all the books, but we have simply taken a half a dozen items from these pages. I wish an exception to the ruling. We have nothing to offer to-morrow so far as the State is concerned, but we would like to get credit for that day so if we need another day in putting in the value of the plant it can be added on to our time.

The MASTER: What about Mr. Burr?

Mr. BURR: I regret to say that our worthy friend, Professor Bemis, is dangerously ill at his home in Cleveland and I have been in receipt of dispatches and letters from his people saying that he is more than anxious to come on, but his physician will not consider his coming on at his time. Dr. Marks I have not been able to see, because he is actively engaged in examining the plants. I do not suppose that I will take more than a couple of hours in gathering up the loose ends which the court referred to, and if it is entirely agree-
5052 able I suggest that the time which we might occupy to-morrow in gathering up these loose threads might be more properly credited to us if you will, from the 3rd of January; it will only make a difference of half a day. I want to say about Professor Bemis, all I wanted, for instance, was to put in, in better shape, in view of your ruling upon those letters which I produced here, the testimony as to the reduction of the cost of gas in Lynn, and the testimony of the growth of ppoulation of the City of New York; and really I do not believe that I would need more than an hour if you would say that we might have, in lieu of to-morrow, an hour in addition to the time set after the 3rd of January. I would be content as far as I am concerned and I join in the request of Senator Page in view of our practically having arrived at the termination of all the evidence that is ready to be submitted now, we having another day at our disposal, you might give us the benefit of this new day at the time we are putting in the evidence as to the value of the plant.

The MASTER: Do I understand that none of the defendants are prepared to do anything more now, until the day set by the court for the taking of the testimony of the value of the plants?

Mr. BURR: So I understand.

The MASTER: Is that true as to both sides?

Mr. PAGE: Yes.

Mr. MATHEWSON: I understand the Senator has stated that he has concluded except as to the value of the plant.

Mr. PAGE: Yes.

The Master states that owing to his engagements on the 2nd, 3rd and 4th of January the hearing will have to proceed on the 5th.

Adjourned to January 5, 1907, at 10.30 A. M.

Last Complainant's Exhibit 270.
Last State's Exhibit OOO.
Last City's Exhibit 124.

5053 Circuit Court of the United States, Southern District of New York.

CONSOLIDATED GAS COMPANY OF NEW YORK, Complainant,

vs.

JULIUS M. MAYER, as Attorney General of the State of New York; WILLIAM TRAVERS JEROME as District Attorney of New York County; FREDERICK E. GUNNISON, JOHN C. DAVIES, and LUCIAN L. SHEDDEN, Constituting the New York State Commission of Gas and Electricity, and the City of New York, Defendants.

Before Arthur H. Masten, Special Master.

JANUARY 5TH, 1907.

Present: The Master, Mr. Mathewson, Mr. Burr, Mr. Kirby, Mr. Page.

5054 The MASTER: Are you ready to proceed, gentlemen?

Mr. PAGE: I see Mr. Burr wants me to put upon the record that I am not ready to proceed this morning. We finished the examination of the plants and are having the results of that examination tabulated so that we can put the testimony in in tabulated form in a very short time. That tabulation is not entirely completed. It will be on Monday morning.

The MASTER: How about you, Mr. Burr?

Mr. BURR: Mr. Master, I had understood and, in fact, it was arranged, that counsel of the State would proceed with the examination regarding the valuation of the plants to-day. That was distinctly understood, and I only heard to the contrary last evening, so that although Dr. Marks has been working continuously upon the subject matter since the last hearing, he is not entirely finished. However, if the State is not prepared to go on as they had intended, I will go ahead as far as I possibly can with Dr. Marks.

The MASTER: Very good.

Mr. PAGE: As I understand, Mr. Burr was communicated with about 12 o'clock yesterday and told that we could not go on.

Mr. BURR: I am not going to enter into any question of veracity about the time. I did not know anything about it until yesterday afternoon when Mr. Kirby telephoned me.

Mr. PAGE: I do not desire any controversy about it, I am sure.

Mr. BURR: I should have had a little more notice about it.

WILLIAM D. MARKS, resumed, testified as follows:

Mr. PAGE: I think we should have some understanding,
5055 as to the methods of proof here, whether we are to go on immediately after the conclusion of Dr. Marks' direct-examination, or whether there is a record kept of the time and the cross-examination is to follow and we are to have our time on the direct.

The MASTER: Mr. Mathewson is entitled to be heard on that. It can be done either way. He can cross-examine as soon as Dr. Marks gets through and I will keep track of the time, or he can have the direct-examination of both of these witnesses for the city and the State finished and then have them reappear for cross-examination, whichever is satisfactory.

Mr. BURR: If I may make a suggestion, I think the latter plan would be better, to get the whole testimony in in regard to the valuation of the plants and then you can start in to cross-examine.

Mr. MATHEWSON: I think perhaps that would be the better plan. I cannot, however, quite say what my view will be until I see in what shape the witness is presenting his testimony. I suppose these two witnesses, Dr. Marks and Mr. Edgerton, covered the same plants, but whether they pursued the same methods, I cannot say.

Mr. BURR: I do not know what plants Mr. Edgerton has covered, but I know Dr. Marks has covered all the plants.

Mr. MATHEWSON: And Mr. Edgerton I suppose has done the same.

Mr. PAGE: Yes.

Mr. MATHEWSON: If the Master can suspend the ruling upon this until Dr. Marks has proceeded somewhat I would be very glad.

The MASTER: Very well.

Mr. MATHEWSON: I will say, Senator, that my present
5056 feeling is, in view of the fact that the same plants are to be covered, that I would prefer to have you complete your direct testimony and see how much time is consumed, and then we can examine the witnesses on the cross, when recalled.

By Mr. BURR:

Q. Doctor, since the last hearing at which you appeared have you been engaged in making an examination of the remaining plants of the Consolidated Gas Company?

A. With the exception of 14th Sreet, I have been continuously engaged.

Q. I said of the remainedr. You have been already examined in regard to the 14th Street plant?

A. I have.

Q. Did you make a personal examination of all the plants?

A. I made a personal examination of every plant in detail.

Q. All the apparatus?

A. All the apparatus.

Q. And the buildings?

A. And the buildings.

Q. And the holders?

A. Holders.

Q. And the tanks?

A. And the tanks and all.

Q. How long were you engaged in making the examination of these plants other than the 14th Street plant?

A. Actual physical examination?

Q. Yes.

A. Of the plants?

Q. Yes.

A. I can give you the date of each examination if you like.

Q. How long were you engaged in the examination of the plants, the number of days and number of nights?

(Witness refers to papers.)

Q. Well, about how many days?

A. From December 17th until the end of the month.

5057 Q. Until the end of December?

A. Until the end of December.

Q. Since that time have you been engaged in computing and making up the results of your examination during the time which you stated?

A. All of that time, from the beginning until coming to this meeting, I have been continuously engaged when not in the building, in either making or supervising computations.

Q. And you have prepared a statement showing each building and each item of apparatus and the value given by you to each building and to each item of apparatus and to everything else that is embraced in the work as far as machinery or other things that are used in the manufacture of gas at the various stations are concerned?

A. I have. I have prepared such an inventory.

Q. And you have given a value to each of these items appearing in those inventories so prepared by you?

A. I have.

Q. Taking out—I believe you testified at the last hearing that the value of the 14th Street station in your judgment was $1,469,064?

A. I did. That included depreciation.

Q. That is less depreciation?

A. Depreciation off.

Q. Will you give me the value of each station, the grand total as you found it of each station less depreciation?

Mr. MATHEWSON: I make the same objection to the witness' testimony that I think I have made heretofore, that he is not qualified as competent to testify as an expert as to these values.

The MASTER: Objection overruled.

Mr. MATHEWSON: Exception.

Q. What did you find the actual present value of the 21st Street station?

A. $2,094,746.

5058 Q. And the 42d Street station?

A. $821,468.

Q. Now, as to the Inwood station?

A. $10,596.

Q. The 99th Str-et station?
A. $568,751.
Q. 44th Street station?
A. $1,230,336.
Q. 111th Street station?
A. $838,147.
Q. 132d Street station?
A. $493,164.
Q. 18th Street station?
A. $223,627.
Q. 63d Street station?
A. $392,796.
Q. 65th Street station?
A. $1,205,997.
Q. Making a grand total of how much?
A. A grand total of $9,348,692.
Q. Including the 14th Street station?
A. Including the 14th Street station.
Q. That in your opinion is the value of all these plants and apparatus, less depreciation?
A. The actual present value of the buildings and gas-making apparatus in the plants to-day.

By Mr. MATHEWSON:

Q. You include the gas distributing apparatus, the holders?
A. Yes, making and distributing—the holding apparatus, I should say, not distributing.

By Mr. BURR:

Q. Taking the matter up in a little more detail, Doctor, referring to the 21st Street station; what did you find to be the total actual cost of buildings and structures to be?
A. The cost of buildings and structures, excavations of walls, etc., $743,700.
Q. Give me that in detail. You have lumped the two items. I want to get the specific item. What did you find the total actual cost of buildings and structures to be?
A. $723,500.
Q. And the excavation and walls?
A. Excavation and walls, etc., $20,200.
5059 Q. Making a total of?
A. $743,700.
Q. What did you find the total gas manufacturing machinery, apparatus and contents subject to depreciation to be?
A. $594,000.
Q. And what did you find the value of the gas manufacturing machinery, apparatus and contents without depreciation to be?
A. Meaning by that apparently new machinery installed lately, $520,250.
Q. What was the valuation of the yard connection?
A. I adopted the figures given by Mr. Mayer, as it was impossible in the time allowed to go over them; $218,200.

Q. Gas holders and tanks, what did you value those at?
A. $630,900.
Q. The total of these amounts is how much subject to depreciation?
A. Subject to depreciation, $2,186,800.
Q. What do you figure the depreciation at?
A. Depreciation is figured at thirty-two years——
Q. Thirty-three years, is it not?
A. Thirty-three years, at .85 of 1 per cent. per year or about twenty-eight per cent., amounting to $612,304.
Q. Deducting that depreciation from the amount given, $2,186,-800 leaves how much?
A. Leaves a balance of $1,574,496, which, added to the machinery relatively new, gives a total actual present value of the 21st Street station, machinery and buildings of $2,094,746.
Q. In other words, adding that $1,574,496 to the $520,250 which you have given as the valuation of the gas manufacturing machinery, apparatus and contents without depreciation gives you a total of $2,094,746?
A. That is it.
Q. As the actual present value of the 21st Street station, machinery and buildings?
A. It does.

5060 Q. Doctor, you have, of course, studied the valuation that has been placed upon all these various items that you are testifying to, as given by Mr. Mayer?

A. I have.
Q. Now, are there any of these buildings regarding which Mr. Mayer has testified which have already been appraised by Rowland?
A. Quite a number of them which were in existence in 1884.
Q. The same buildings that Rowland appraised in 1884 are still in existence and were appraised in 1906 by Mr. Mayer?
A. They were.
Q. I call your attention to this station, 21st Street, and ask you whether the sheds there, Nos, 2, 3, 4, 5, 6, 7, 8, 9 and 10 were in existence and appraised by Rowland in 1884?
A. They were.
Q. What is the valuation given by Rowland in 1884 for those sheds?
A. $246,349.
Q. With depreciation?
A. With depreciation.
Q. What is the value which Mr. Mayer has placed upon it?
A. $677,183, in 1906.
Q. So there is an excess in valuation by Mr. Mayer of $430,834 over the valuation placed by Rowland in 1884?
A. There is.
Q. What did you find the condition of the scrubber house to be—the shed?
A. In the case of the shaving scrubber house, the roof had entirely vanished, the floor remained there in portions but it was rotted and in a wretched condition.

Q. In the retort house, what did you find?

A. In the retort house I found 32 benches of sixes, of which 36 were fired and 156 were idle, and also 20 benches of sixes, of which none were fired and 120 were idle.

Q. And in the 22d Street retort house?

A. Twenty benches of sixes, of which none were fired and 120 were idle.

Q. What did you find the percentage of retorts used to be?

A. The percentage of the total number of retorts in actual use was 11½ per cent., about.

Mr. BURR: If the Master thinks it will facilitate matters
5061 and will be a more orderly arrangement I can have him say this is his statement with regard to the 21st Street station, and have that as his answer to that. He may incorporate it here, and the same way with regard to the other stations. I will give Mr. Mathewson copies of them.

The MASTER: Is there any objection to that Mr. Mathewson?

Mr. MATHEWSON: No, I think that would be the better plan.

Mr. BURR: That will be a saving of time and give you an opportunity to go over the figures, because I have a great mass of detail in addition to this in these statements which will be subject to your cross-examination, but this will give you the idea of valuation he has placed upon each item and how we have arrived at it and you can bring out on cross-examination what you desire. In other words, then, if it pleases the Master, I will say that he has prepared a statement showing the valuation placed by him upon all the items in the 21st Street station, and that this statement which I now hand the stenographer shows that, the first page being a summary.

Mr. MATHEWSON: I think the witness perhaps ought to testify he did prepare these items.

Mr. BURR: Yes, I will bring that out.

Q. You have also prepared a statement showing the valuations placed by you upon each item, including buildings and apparatus of the other stations, have you not?

A. Yes.

Mr. BURR: So I wil- hand the stenographer the itemized sched-
ules showing valuations placed by Dr. Marks on each of the
5062 buildings, and each and all of the apparatus at the following plants: 14th Street, 42d Street, 44th Street, 21st Street, 99th Street, 18th Street, 63d Street, 65th Street, 111th Street, 132d Street and Inwood.

5063 RECAPITULATION OF INVENTORY OF 14TH STREET STATION OF THE CONSOLIDATED GAS COMPANY, 1906.

(See testimony before Master, pages 4564 and 4584.)

Total actual first cost of buildings and structures (inventory 1884)	$1,706,294	
Depreciation (50 years at .85 of 1%) 42½%	725,175	
		$981,119
Gas Machinery and Appr. added since 1884 (actual cost)	132,000	
Depreciation (12 years at .85 of 1%) 10%	13,200	
		118,800
Actual cost Yard and Holder connections in 1906 (Meyer)	146,895	
Actual cost Yard and Holder connections in 1884	82,178	
Actual cost additions to yard connections	64,717	
Depreciation 10%	6,472	
		58,245
Actual cost of holder and steel tank (no depr.)	225,000	
Actual cost of foundations for holder (no depr.)	50,000	
		275,000
Actual cost of new buildings added (no depr.)		35,900
Actual present value of buildings and apparatus		$1,469,064

NOTE—

Stocks	Benches	Retorts	Fired	Idle
4	120	720	540	180
1	24	144	none	144
		864		

December, 1906. Per cent. of total retorts used, 62%.

5064 RECAPITULATION OF INVENTORY OF 42ND STREET BUILDINGS AND APPARATUS, CONSOLIDATED GAS COMPANY.

Total actual first cost of buildings and structures (1863)	$425,810.14	
Total actual first cost of walls & fences	3,540.26	
Total actual first cost of bridges, dumps, etc.	4,900.00	
		$434,250
Total Gas Manufacturing Machinery and App. and Cont.		515,400
Total Yard connections (Meyer)		134,000
Total Gas Holders and Tanks		210,000
Total, All Buildings, Apparatus, Yard connections & Holders		$1,293,650
Depreciation (43 years at .85 of 1%) 36.5%		472,182
Actual present value of 42nd Street Station		$821,468

NOTES—December, 1906.

Retort House,		Benches	Retorts	Fired	Idle
"	#1,	60	360	180	180
"	#2,	6	36		36
"	#3,	14	84		84
"	#3,	20	140	56	84
"	#4,	4	24		24
			644	236	408

Capacity of Works employed 37 per cent. of total.

5065 INVENTORIES OF THE BUILDING AND APPARATUS OF THE FORTY-SECOND STREET GAS WORKS OF THE CONSOLIDATED GAS COMPANY OF NEW YORK CITY, 1906.

	Buildings only.	Total cost.	Values not computed.
	1863.		
1	Valve house and vault under yard	$1,346.89	
2	Vault, planking, pumping and sheet piling	367.20	
3	Meter house	225.53	
4	Purifying house	25,536.00	
5	Purifying house extension	2,040.00	
6	Engine and meter house	11,357.15	
7	Vaults	1,026.00	
8	Toilet	51.43	

9	Bench foundations and retort house..	112,692.48	
10	Condenser and scrubber house.....	11,787.22	
11	Retort houses Nos. 2 and 3.....	63,175.90	
12	Vault	3,881.25	
13	Exhauster, engine and scrubber house.	15,493.46	
14	Retort house No. 4 (Experimental)..	4,631.12	
15	Vault S. of No. 1 retort house, NO of Nos. 2 and 3.....	27,031.10	
16	Vault between purifying house and Ex. H. and S. house.....	2,126.93	
17	Shed	604.80	
	1887.		
18	Coal shed No. 1.....	25,393.50	
19	Coal shed No. 1. Runway overhead		$1,000.00
20	Coal shed No. 2.....	92,589.96	
21	Carpenter shop,		
	1863.		
22	Brick fence on 11th Avenue.....	1,546.20	
23	Brick fence on 42d Street.....	1,994.06	
5066			
24	Main bldg., stable and wagon shed...	18,395.32	
25	East extension to above.....	996.95	
26	Another extension to above.....	1,173.47	
27	Building used for storing hay, etc.....	2,332.40	
28	Harness house	546.13	
29	Coke storage, weigh office.....	213.59	
	1886.		
30	Iron bridge crossing 12th Ave.....		1,500.00
31	Deodorizing house (frame).....	634.30	
32	Cribbing and earth filling for 8 oil tanks,		
33	Pump house on pier (frame).....	160.00	
34	Timber ash dump.....		1,000.00
35	Timber retaining fence around coal store		1,400.00
		$425,810.08	$4,900.00
	Solid walls, not computed in cubic feet	3,540.36	
		4,900.00	
		$434,250.34	

5067 INVENTORIES OF THE BUILDINGS AND APPARATUS OF THE FORTY-SECOND STREET GAS WORKS OF THE CONSOLIDATED GAS COMPANY OF NEW YORK CITY, 1906.

DAILY CAPACITY, 4,500,000.

	Apparatus only.	Act. cost.
36	Valve house 1863,	3,000.00
37	Purifier house (8 purifier boxes 20 x 3)	24,000.00
38	4 purifiers 13 x 27 x 3 ft. 6 in.....	12,000.00
39	Purifiers, 7 ft. 6 in. x 19 ft. 6 in. x 3 ft.	3,000.00
40	2 hydraulic floor cars.....	1,200.00
41	1 hand power floor car for 16 ft. x 27 ft. pur.	500.00
42	Hand power floor car for 6 ft. 6 in. x 10 ft. 6 in.....	300.00
43	Engine and meter house, 148 ft. x 48 ft., McKenzie exhauster.....	3,500.00
44	3 meters	12,000.00
45	Added for Dep.	
46	Retort house No. 1 (60 benches, 6's).	180,000.00
47	Condenser and scrubber house (2 scrubbers 8 x 18).....	3,000.00
48	1 W. I. Multitubular condenser.....	9,000.00
49	1 air condenser	11,000.00
50	1 C. I. Box 7 ft. 6 in. x 5 ft. 6 in. x 9 ft. (out of use)	
51	Retort house, 2 and 3 (6 benches of 6's)	36,000.00
52	20 benches of 7's.....	54,000.00
53	Exhaust engine and scrubber house 1 Greenfield engine 8 x 8.....	1,600.00
54	2 large McKenzie exhauster (see 126)	3,400.00
55	1 horizontal engine, 16 x 30.....	3,000.00
56	1 Greenfield engine, 8 x 8.....	400.00
57	1 rotary washer, 8 x 21 8 in.....	7,000.00
58	1 Greenfield engine, 10 20.....	600.00
59	Rotary washer, 8 ft. x 21 ft. 8 in.....	10,000.00
60	1 Multitubular condenser, 42 x 5 x 14	10,000.00
5068		
61	2 oil gas scrubbers, 5 x 23.....	5,000.00
62	Added for depreciation.	
63	1 oil gas condenser.....	1,800.00
64	Retort house No. 4 (Expt. benches)..	10,000.00
65	Vault (1 small drip pump).....	100.00
66	2 Continental boilers.....	3,000.00
67	Breaching and steel stack.....	500.00

68	1 Continental boiler	2,700.00	
69	Breaching and stack	400.00	
70	2 small boiler pumps	200.00	
71	1 Knowles air compressor	700.00	
72	2 feed water heaters (See 118)	600.00	
73	1 Greenfield engine, 8 x 8	400.00	
74	1 vertical drill press	100.00	
75	1 pipe cutter	300.00	
76	1 bench lathe,		
77	Carpenter shop, contents	1,000.00	
78	Coke storage yard, contents	1,500.00	
79	Tank and scale, total	1,700.00	
80	Water meters	100.00	
81	Coal hoisting apparatus, total	75,000.00	
82	Oil and tar storage tanks (2 W. I. tanks, 9 x 30)	2,000.00	
83	8 W. I. tanks, 8 x 25	6,000.00	
84	1 W. I. tank, 30 x 21	3,300.00	
85	1 wooden tank, 30 x 15 ft. 6 in	500.00	
86	Pile foundations	600.00	
87	1 W. I. tank, 5 x 25	400.00	
88	1 wooden well 20 x 25 x 8	200.00	
89	1 wooden well 20 x 20 x 8	200.00	
90	1 wooden well, 18 ft. 9 in. x 7 ft. 6 in. x 8	100.00	
	Lining for tanks	4,000.00	
91	Pile foundation for wooden T	500.00	
92	Deodorizer house	4,000.00	
			515,400
93	Pipe and connections	134,000.00	
94	4 holders, of 250,000 C. F. cpa	90,000.00	
95	4 brick tanks and foundations	120,000.00	
			210,000
96	Steel tank holders,		

5069 RECAPITULATION OF INVENTORY OF THE 44TH STREET STATION BUILDINGS AND APPARATUS, CONSOLIDATED GAS COMPANY.

Total actual 1st cost of Buildings & Structures	$222,734		
Total actual 1st cost of Walls	29,000		
		$251,734	
Total Gas Mfg. Machinery App. & Cont. (Subject to Depreciation)		279,500	
Total Gas Mfg. Machinery App. & Cont.			$132,000

Total Yard Connections (Meyer's figures)		99,910
Total Gas Holders and Tanks		600,000
Total (Subject to Depreciation)	531,234	
Depreciation (30 years at .85 of 1%) 25%	132,808	
		398,426
Actual present value of 44th St. Sta.		$1,230,336

NOTE—Ten double benches of retorts (60 single length retorts) idle. It was impossible to locate all the oil tanks as Mr. Hawthorne, Supt., could not find them. Meyer's figures accepted.

5070 INVENTORIES OF BUILDINGS AND APPARATUS OF FORTY-FOURTH STREET GAS WORKS OF THE CONSOLIDATED GAS COMPANY OF NEW YORK CITY, 1906.

	Buildings only.	Total cost.	Values not computed.
1	Governor House	3,136.08	
2	Valve House	1,229.66	
3	Carpenter Shop (See 27)	2,215.20	
4	Lumber Shed (See 27)	462.00	
5	Purifier House	58,622.36	
6	Water House & Office Bldg.	11,093.91	
7	Condenser & Scrubbing House	11,938.98	
8	Engine, Exhauster & Blr. House	16,408.51	
9	Gen. & Boiler House	29,817.16	
10	Retort House	33,906.60	
11	Coal House (See 16)	86.40	
12	Concrete Mixer & Eng. Bldg.	180.00	
13	Storage Tar Tank Bldg.	86.40	
14	Oil Pump House	1,468.94	
15	Tar Separator System		2,000.00
16	Coal Shed (See 150) (11)	10,006.02	
17	Scale Building (See 16)	32.40	
18	Water Tower	1,099.56	
19	Exhaust & Boiler House	1,890.00	
20	Lime & Oxide Storage Shed	4,368.00	
21	Purifier, Meter & Storage House	22,146.59	
22	Stable	6,672.00	
23	Tool-shop	1,563.33	
24	Store House	1,509.36	
25	Small Brick Bldg.	300.00	
26	Shed	104.00	
27	Blacksmith-shop 3 & 4	420.00	
28	Pipe House		
28	Pump House	16.80	
30	Walls, Fences & Pavement		26,000.00

5071

31	Shed at Oil Storage Tanks	56.40	
32	Salt Water Condenser Foundations		
33	Hot Gas Scrubber Foundation.....		
34	Air Condenser Foundation.....		1,000.00
35	Underground Drainage Tank in Yard.	1,271.40	
36	Forced Draught Fan Room.....	38.40	
		222,732.44	29,000.00
	Walls	26,000.00	
	Values Not Computed c. f.....	3,000.00	
		$251,732.44	

5072 INVENTORIES OF BUILDINGS AND APPARATUS OF THE FORTY-FOURTH STREET GAS WORKS OF THE CONSOLIDATED GAS COMPANY OF NEW YORK CITY (1906).

	Apparatus only.	Act. cost.	Dep. cost.
37	Governor House, 15 floor stands....		No Depr.
38	One 24" Smith & Sayre Gov.....	1,600.00	
39	Ganges and Furniture.....		
40	Valve House, Contents.....		
41	Carpenter Shop, Contents.....	100.00	
42	Purifier House, Contents	40,000.00	
43	Meter House, and Office Building 2—14 x 14 Station Meter.....	12,000.00	
44	One 16" Wylie Prop. Meter and One Small Meter.....	1,600.00	
45	Office Furniture	1,400.00	
46	One Bar Photometer, etc.....		
47	Condenser and Scrubber House, 2 Scrubbers	5,000.00	
48	2 Rectangular Condensers	30,000.00	
49	1 Westinghouse No. 25 Gas Meter		
50	1 Revolving Condenser		
51	Engine Ex. and Blr. House (2 Vertical Engines)	2,000.00	
52	2 Payne Engines, 14 x 14.....	4,000.00	
53	1 Horz. Buckeye Engine, 14½ x 14	2,000.00	
54	2 McKenzie Exhausters	3,500.00	
55	3 No. 10 Sturtevant Mont. Blowers.	1,800.00	
56	1 Blast Gate Valve, etc.....	300.00	
57	1 Comp. Dup. Worth. Pump.....	700.00	
58	1 Davidson Pump, No. 10.....	800.00	
59	Engine Exhauster and Boiler House (1 Knowles Dup.).....		
60	1 Spence Automatic Damper Rwy..		
61	1 McClellan Oil Purifying Tank...		
62	1 Gild & Garrison No. 4 Pump....	2,000.00	
63	1 Blake-hunt, Jet Condens.....		
64	Counter Shafting, Pulleys, etc.....		

5073

65	Generator & Boiler House (2—2 ft. 6 in. U. G. I sets)		29,000.00
66	4 U. G. I. *stes*, 12 in		75,000.00
67	4 Hazleton Purcupine Boilers		13,000.00
68	2 Hydraulic West		4,000.00
69	C. I. Charging Floor		11,000.00
70	Retort House (10 benches 6's back to back)	40,000.00	
71	2 A. & T. B. & W. Tyle Boilers	7,500.00	
72	2 Hazleton Purc. Boilers	6,700.00	
73	No. 1 #10 Sturtevant Boiler	600.00	
74	1 Armington & Sims Eng., 10½ x 12	1,000.00	
75	1 #4 Garrison Pump, 8 x 4½ x 10	200.00	
76	1 Beryman Heater	200.00	
77	Air and Salt Water Condensers (2 Air Condensers)	14,500.00	
78	1 Salt-Water Condensers	10,000.00	
79	1 Salt Water Condensers	8,000.00	
80	Coal-hoisting App., etc. (1 Hunt Hoisting Eng.) (16)	8,000.00	
81	Water-tower (1 Blake Comp. Dup. Pump)	1,800.00	
82	1 Worthington Dup. Pump	500.00	
83	1 Steel Tank, 20 x 20	2,000.00	
84	Exhauster and Boiler House (1—24 in. McKenzie Exh.)	1,800.00	
85	1 Greenfield Reversing Engine, 8 x 8	500.00	
86	2 Vert. Boilers, 3 x 9	500.00	
87	Lime & Oxide Shed Contents	2,500.00	
88	Purifier Shed, 4 C. I. Purifier Boxes, etc.	18,000.00	
89	Meter House (1—14 in. diam. Met.)	6,000.00	
90	24 in. Connections and the Necessary Gauges	1,100.00	

5074

91	24 #7 Sturtevant Blowers, Dismantled	400.00	
92	3 Dismantled Walking-beam, Eng.		
93	Stable, 23 Stalls, 158	400.00	
94	Tool-shop Contents	1,500.00	
95	Store House, and Annex, Cont.	400.00	
96	Oil Tanks Under Ground (13 Tanks, 18 x 30)		
97	3 Tanks, 12 x 35	14,000.00	
98	1 Tank, 12 x 7		
99	Tanks Over Ground, 1—8 x 20	800.00	
100	Filter Press House, Contents	900.00	
101	Tar and Oil System Various Tanks	700.00	

102	Pump Shed, Contents.....	300.00	
103	Blacksmith Shop, Contents (27)..	300.00	
104	Pump House (1 Worth, dupl.)...	500.00	
105	1 #10 Cameron.....	400.00	
106	Oil Tanks	10,000.00	
107	Concrete Mixer House (1 Sturtevant Engine)	200.00	
108	1 Concrete Mixer.....	400.00	
109	Storage Tar Tanks, total.....	18,000.00	
110	Oil Pump House (2 Steel Oil Tanks)		
111	2 Davidson Single Pumps, 9 x 9 x 12		
112	2 Cameron Pumps, 12 x 7 x 13...		
113	1 Worthing Dupl., 7½ x 4½ x 10.	3,000.00	
114	1 Cameron #8		
115	1 Worthington Dupl., 6 x 5¾ x 6		
116	1 Cameron #9		
117	Tar Separator System.....	2,000.00	
118	Scale House	300.00	
119	Draught Fans (Forced).....	1,000.00	
120	Totals	279,500.00	1,320,000.00

5075

121	4 Holders, 375 c. f. cap. (125)...	300,000.00	
122	1 Holder, 2,000,000 c. f. cap. (126)	225,000.00	
123	1 Holder, 125,000 c. f. cap. (127)	75,000.00	
124	1 Holder, 125,000 c. f. cap. (127)		
125	4 Brick Tanks, 93 x 32.....		
126	1 Brick Tank, 185 ft. 3 in. x 41 ft. 5 in.		
127	2 Brick Tanks, 75 x 32.....		
		600,000.00	

5076 RECAPITULATION OF INVENTORY OF 21ST STREET BUILDINGS AND APPARATUS, CONSOLIDATED GAS COMPANY.

Total Actual 1st Cost of Bldgs. and Structures (Av. date 1874)....	$723,500		
Total Actual 1st Cost of Excavation and Walls, etc.....	20,200		
		$743,700	
Total Gas Manufacturing Mach. App. and Cont. Subj. Depreciation.....		594,000	
Total Gas Manufacturing Mach. App. and Cont. Without Depreciation.....			$520,250

Total Yard Connections (Meyer's Figs.)	218,200	
Total Gas Holders and Tanks	630,900	
Total Subject to Depreciation	$2,186,800	
Depreciation (33 Years at .85 of 1 per cent.) 28 per cent	612,304	
		1,574,496
Actual Present Value of 21st St. Station, Mach. and Bldgs.		$2,094,746

NOTE—

Meyer's Valuation of Sheds 2, 3, 4, 5, 6, 7, 8, 9 and 10 in 1905	$677,183	with dep.
Rowland's valuation of Sheds 2, 3, 4, 5, 6, 7, 8, 9 and 10 in 1884	246,349	with dep.
Excess in Valuation by Meyer	$430,834	

Roof gone. Floor rotted to shaving Scrubber House (shed).

NOTE—December, 1906:

Retort House	Benches	Retorts	Fired	Idle
Old R. H. (88)	32	192	36	156
R. H., 22d St. (130)	20	120	00	120
		312	36	276

(Per cent. retorts used 11½ total.)

Water gas apparatus appears to be in operating condition throughout.

With the exception of $520,250 value of Machinery not depreciated most of the remainder appears old and dirty.

All of the Buildings are sound, but require small repairs.

5077 INVENTORIES OF BUILDINGS AND APPARATUS OF TWENTY-FIRST STREET GAS WORKS OF THE CONSOLIDATED GAS COMPANY OF NEW YORK CITY, 1906.

DAILY CAPACITY, 2,400,000 Water Gas; 3,500,000 Oil Gas.

	Buildings only.	Total cost.	Values not computed.
1	Stove, Storage and Meter Proving Shop	$27,890.63	
2	Meter, Repair Shop and Office, 1890	31,947.82	
3	Stove, Repair Shop	10,187.25	
4	Stove, Cleaning Room	714.00	
5	Prepaying Meter, Repair Shop	4,483.50	
6	Storage Room	1,530.00	
7	Wash Room	459.00	
8	Boiler House	5,800.00	

9	Oil Storage House	117.60	
10	Lead and Yellow Metal Storage House	374.00	
11	Fire Hose House	10.50	
12	Valve House 1883,	1,370.25	
13	Octagonal Valve House	2,436.88	
14	Valve House 1880,	279.00	
15	Tinsmith Shop	2,074.80	
16	Store Room, Triangular Building		$100.00
17	Paint Shop, Triangular Building		100.00
18	Office 1860,	10,681.20	
19	Engine Room, Machine Shop and Gangway 1865,	32,810.00	
20	Engine Room	10,124.40	
21	Machine Shop	1,690.00	
22	Foundations for Benches		
23	New Shop Bdg., Blacksmith, 1890	2,009.25	
22	Old Retort House	3,805.20	
24	Old Carborator House.....1860	2,021.61	
25	Generator House (over Machines 6-13) 1865,	36,975.00	
5078			
26	Building over Boiler, and Coke Storage	69,591.55	
27	Generator House, 22d St.....1873,	60,384.00	
28	Bench Foundations	..	
28	Retort House, 22d St.....1865,	77,872.51	
29	Pump House 1865,	3,208.62	
30	Sheds, S. of 21st St., two.....1874,	20,935.53	
31	Shed No. 3.....1874,	20,935.53	
32	Shed No. 4	20,935.53	
33	Shed No. 5	20,935.53	
34	Shed No. 6	20,935.53	
35	Purifier House	38,381.80	
36	Condenser and Scrubber Houses	38,381.80	
37	Purifier House (10)	38,381.80	
38	Meter House 1884,	27,820.80	
39	Shaving and Scrubber House (9) 1874,	11,118.70	
40	Exhauster House 1884,	19,853.63	
41	Coal Shed (1) N. of 21st St	43,350.00	
42	Water Tower	785.40	
43	Excavation, Cribbing, etc., for 12 Oil Tanks	..	
44	Excavation, Cribbing, etc., for 10 Separate Tanks	..	
45	Foundation for Oil Tank	..	
46	Foundation for Steel Tank		20,000.00
		$723,500.15	$20,200.00
	Not Computed in c. f.	20,200.00	
		$743,700.15	

5079 INVENTORIES OF THE BUILDINGS AND APPARATUS OF THE TWENTY-FIRST STREET GAS WORKS OF THE CONSOLIDATED GAS COMPANY OF NEW YORK CITY, 1906.

DAILY CAPACITY, 24,000,000 Water Gas & 3,500,000 Oil Gas.

	Apparatus.	Act. cost.	Dep't cost.
47	Repair Shops (3 Engines—85 h.p.)	2,500.00	
48	Remainder of Apparatus (Mayer).	14,000.00	
49	Boiler House, two 60-h.p. Boilers..	2,000.00	
50	One 3-inch Worthington Meter...	50.00	
51	Two 24-in. by 30-in. Steel Stacks..	100.00	
52	30 c. y. Firebrick Blocks.....	800.00	
53	Oil Storage House, Contents (Meyer)	50.00	
54	Lead and Yellow Metal Storage House	250.00	
55	Fire Hose House.....	250.00	
56	Valve House, Photometer Closter and P. B.....	650.00	
57	Three Gas Pressure Gauges.....	..	
58	One Bristol Recording Gauge.....	..	
59	One Electric Pressure Indicator...	300.00	
60	Octagonal Valve House, 1-7x7 Wood Tank.....	360.00	
61	Five Gas Lamps.....	40.00	
62	Tinsmith Shop Rigging.....	550.00	
63	Store Room, Paint.....	50.00	
64	Office Building, Furniture.....		
65	Chemical Laboratory, Contents...	4,500.00	
66	Engine Room (1 Knowles, com. p.)	800.00	
67	One Blake, Com. p.b. Feed Pump.	1,000.00	
68	One Cameron Pump.....	300.00	
69	Two (120) Connesville Exhauster.	6,000.00	
70	Two Horizontal Buckeye Engines.	6,000.00	
71	Three McKenzie Exhausters.....	5,000.00	
72	Three Rowland Vertical Engines, 12x12	3,600.00	
5080			
73	Two 10-inch Link Belts.....	..	
74	One 10-inch Four-Ply Leather Belt	400.00	
75	Two McKenzie Oil Gas Exhausters	2,500.00	
76	Two 6x7 Vertical Engines.....	400.00	
77	One Armington & Sims Engine, 10½x12	1,200.00	
78	Three Buckeye Horizontal Engines	12,000.00	
79	Three Sturtevant Blowers, No. 16.	6,000.00	
80	Two Cameron Pumps, 14x7x33...	1,200.00	
81	One Slate Gauge Board.....	100.00	

82	Steam and Water Pressure Gauge.	4,500.00	
83	Three 22-inch, Two-Ply Leather Belts, 60 p.....	400.00	
84	Blast Piping.....	1,000.00	
85	Machine Shop (1 Greenfield Engine, 10½x12).....	1,000.00	
86	Three Tons Cast-Iron Pulleys, etc. (10c.)	600.00	
87	Remainder of Contents (10c.).....	300.00	
88	Old Retort House (16 Benches of Sixes)	64,000.00	
89	One Worthington Duplex Pump..	200.00	
90	Two Cameron Pumps.....	100.00	
91	Smith Shop (Contents).....	1,400.00	
92	New Shops, Bldg. (Contents)....	800.00	
93	Old Corbonator Shop (1 English Duplex Air Compressor).....	2,500.00	
94	One Cameron Pump, 16x20.....	2,500.00	
95	One Knowles Pump, 20x18x24...	4,000.00	
96	Two 5,000 Rect. Tanks.....	..	
97	Two 1,000 Gal. Rect. Tanks.....	300.00	
98	One Steam Trap.....	..	
99	Retort House, 22d St. (3 salt water condensers)		90,000.00
100	One Similar Condenser.....	..	..
101	Generator House over Machines, 6 to 13 App. new.....		140,000.00
5081			
102	Cast-Iron Floors and Columns, Sur. Machines.....		47,500.00
103	Hydraulic Elevator.....		$4,000.00
104	Two Cameron Pumps.....		200.00
105	Blast Piping, Water Piping, etc...		250.00
106	600 Feet Industrial Rwy.....		300.00
107	Bldg. over Boiler and Cold Storage (Two B. & W. Boilers).....		16,500.00
108	Two New Boilers (Foundations)..		19,800.00
109	Two A. & T. Boilers, 500 h.p.....		16,500.00
110	Two Steel Stacks, 7x110.....		3,400.00
111	Two Breeches for Above Stack....		900.00
112	One Additional Stack, ⅓ Complete		500.00
113	Two Armington & Sims Eng., 10½x12		2,200.00
114	Two American Co. Fan Blowers..		1,000.00
115	Three Filter Presses (Johnson & Co.)		
116	One Centrifugal Tar Elementer...		1,200.00
117	One Horizontal Engine, 7x9.....	250.00	
118	One Round C.I. Tank, 15x12.....	2,300.00	
119	Two W.I. Tanks, 6′x4′6″.....	150.00	
120	One W.I. Rect. Tank, Inground.	700.00	
121	Three No. 4 Cameron Pumps....	700.00	

122	2,000 ft. Industrial Rwy.....	1,000.00	
123	Gen. House, 22d (Water, Gas Appar.) New.....		100,000.00
124	One Experimental Oil Gas Apparatus	12,000.00	
125	Six Hazleton Boilers, 250 h.p.....	23,000.00	
126	One Cameron Pump, 6x3x6.....	..	
127	One Cameron Pump, 6x4x6.....	250.00	
128	One Worthington Pump, 6x4x6..	..	
129	Gas, Steam, Tar and Oil Piping..		47,500.00
130	Retort House, 22d St. (20 s. Benches)	40,000.00	
131	Forty Enameled Wash Basins, etc.	2,400.00	
5082			
132	Two Tar Separating Tanks (6c.).	3,000.00	
133	One Worth. Duplex Pump, 10x6x10	300.00	
134	Two Cameron Pumps, 14x12x12..	900.00	
135	One Cameron Pump, 10½x12x21.	500.00	
136	One Worthington Duplex Pump, 7½x6x10	250.00	
137	Two Cameron Pumps, 6x3x6.....	150.00	
138	One Cameron Pump, 6x10.....	250.00	
139	One Oil Tank, 6x10.....	150.00	
140	Pump House (2 Worth. Dup. P-mps)	300.00	
141	One Cameron Pump, 10½x12x25.	500.00	
142	One Blake Dup. Pump, 7½x6x10.	250.00	
143	Two Knowles Dup. Pumps, 6x4x7 and Piping.....	400.00	
144	Two Cameron Pumps, 6x3x6.....	200.00	
145	One Cameron Pump, 12x9x14....	400.00	
146	Two W.I. Tanks, 8x12.....	600.00	
147	One Foster Pump, 9x6x12.....	400.00	
148	Two W.I. Tanks, 6x10.....	350.00	
149	Sheds 2, 3, 4 and 5 (Elevator)....	..	
150	Shed No. 5, One Cameron Pump, 14x7x18	..	
151	One Hydraulic Elevator.....	7,000.00	
152	One Vertical Boiler, 5x8.....	..	
153	One Accumulator.....	..	
154	P-rifier House, App.....	60,000.00	
155	Condenser and Scrubber House (2 Scrubbers)	10,000.00	
156	Six Condensers (1 in course of erection)	80,000.00	
157	One Oil Gas Meter, 10x10.....	3,000.00	
158	Shed (1 Hydraulic Elevator)).....	1,000.00	
159	Six Shaving Scrubbers.....		18,000.00
160	Eng. Exhauster, Piping, etc.....		1,500.00

161	Purifier Shed Apparatus.....	84,000.00	
162	Meter House (2 13 ft. c.i. Meters)	12,000.00	
5083			
163	Two 19-foot W.I. Meters.....	22,000.00	
164	One 19-foot C.I. Meter.....	10,800.00	
165	One 16-inch Wiley Prop. Meter...	..	
166	Exhaust House No. 2 (McKenzie Exhausters)	3,900.00	
167	One McKenzie Exhauster, 36-inch.	2,200.00	
168	Three Rowan Vert. Engine-, 12x12	3,000.00	
169	Coal Shed (1 Bucket Elev., etc.).		4,000.00
170	Underground Conveyor.....		5,000.00
171	One Greenfield Vert. Eng., 10½x12	1,000.00	
172	Water Tower Yard, Steel Tank...	2,000.00	
173	Retort House Yard (Steel Tank, 14x9'2")	600.00	
174	Steel Tank, 10x9.....	300.00	
175	Steel Tank, 14x4'6".....	500.00	
176	One New Oil Tank, 57x30.....	3,000.00	
177	Steel Tank, 7x20x9'9" (not found)		
178	Steel Tank, 20'1"x38'1"x8'8" (Tar Separator)	1,500.00	
179	Twelve Steel Tanks, 8x40.....	18,000.00	
180	Ten Steel Tanks, 11'x39'6".....	17,000.00	
181	One Steel Tank, 10x9.....	400.00	
182	Two Wooden Tanks.....	1,100.00	
183	One Steel Tank, 16x50x2'4".....	..	
184	Total	$594,000.00	$520,250.00
185	Four Holders, 400,000 c.f. Capacity	320,000.00	
186	One Holder, 1,500,000 c.f. Capacity	225,000.00	
187	Four Brick Tanks, 89'6"x24'2"...	See 185	
188	Brick Tanks, 171'x37'2".....	See 186	
189	Two Steel Tank Holders (429,500)	85,900.00	
		$630,900.00	

5084 RECAPITULATION OF INVENTORY OF 99TH STREET STATION BUILDINGS AND APPARATUS, CONSOLIDATED GAS COMPANY.

Total actual first cost of buildings and structures (1881).....	$130,377		
Total actual first cost of walls and foundations	12,600		
		$142,977	
Total actual first cost of gas app. (sub. to depr.)		188,200	
Total actual first cost of gas app. (not depr., new)			$79,800

Total actual first cost of yard connections (Mayer)	55,248	
Total actual first cost of gas holders and tanks	232,500	
Total, subject to depreciation	618,925	
Depreciation (25 years at .85 of 1%) 21%	129,974	488,951
Actual present value of 99th Street Station		$568,751

NOTE—

11 benches double length retorts not used.
6 vacant arches in this stock.
1 hydrogen scrubber, not found.
Works appear generally very neat and well cared for.

5085 INVENTORIES OF BUILDINGS AND APPARATUS OF THE 99TH STREET GAS WORKS OF THE CONSOLIDATED GAS COMPANY OF NEW YORK CITY, 1906.

	Buildings only.	Total cost.	Values not computed.
1	Engine house, boiler ho., pump house, machine shop, retort and accumulator house	43,610.60	
2	Generator house	13,921.84	
3	Foundations for air condenser		1,000.00
4	Foundations for salt water condenser,		
5,	Office building	5,893.24	
6	Meter house	8,213.40	
7	Purifier house	27,453.60	
8	Lime house	2,551.50	
9	Valve house and drip pump house	60.00	
10	Valve house No. 1	21.20	
11	Valve house No. 2	21.20	
12	Valve house No. 3	21.20	
13	Valve house No. 4	21.20	
14	Condenser and scrubber house	8,213.40	
15	Exhauster house	4,320.34	
16	Tar separator system 4 ft. deep	1,000.00	
17	Pump pit	94.32	
18	Tar storage foundation		100.00
19	Coal shed	15,588.30	
20	Filter press house	91.00	
21	Walls around works, 800 ft.	8,000.00	

23	Cover over doors of oil tank in ground, frame shed	281.25	
24	Foundations under hot scrubbers in yard,		
22	Fences, 1750 ft.....		2,500.00
		130,377.49	3,600.00
	Walls	9,000.00	
	Value not computed in c. f.....	3,600.00	
		$142,977.49	

5086 INVENTORIES OF BUILDINGS AND APPARATUS OF THE 99TH STREET GAS WORKS OF THE CONSOLIDATED GAS COMPANY OF NEW YORK CITY, 1906.

	Apparatus only.	Act. cost.	Dep. cost.
25	Generator house apparatus.....		56,000.00
26	Charging floor		8,000.00
27	Air Condenser	8,000.00	
28	Yard (salt water condenser).....		10,000.00
29	Office, bldg., furniture, etc.....	2,000.00	
30	Meter house (1-16-in. station meter)	10,000.00	
31	1 13 ft. 6 in. station meter.....	6,000.00	
32	Purifier house, apparatus	32,000.00	
33	Lime house, contents.....	100.00	
34	Valve house and drip pump house		
35	Valve house,		
36	Valve house,		
37	Valve house,		
38	Valve House	100.00	
39	Condenser and scrubber house (2 10 x 24 high scrubbers).....	5,000.00	
40	C. I. condensers	16,000.00	
41	Exhauster house (1 McKenzie engine No. 5).....	1,800.00	
42	1 Greenfield vertical engine, 9 x 9..	500.00	
43	Tar separating system in yard.....		2,200.00
44	Pump pit (1 Knowles 6 x 7 x 12),		
45	1 Knowles pump, 8 x 10 x 12,		
46	1 Davidson pump, 8 x 4 x 12.....	800.00	
47	1 Cameron pump, 4½ x 4 x 6,		
48	Yard, 3 tar storage tanks.....	700.00	
49	Yard below ground, 12 steel tanks,		
50	2 wall storage tanks of steel.....	20,000.00	
51	1 drip-valve tank	600.00	

5087

52	Coal shed, 2 hydraulic lifts	4,500.00	
53	2 platform scales	300.00	
54	Yard, 2 hot scrubbers of steel		1,600.00
55	2 hydrogen scrubbers (1 missing)	700.00	
56	Engine house, 2 Sturtevant horiz. Engines, 10 x 12		2,000.00
57	1 Armington & Sims horiz. engine, 10 x 12	1,200.00	
58	3 Sturtevant No. 10 gas blowers	1,700.00	
59	2 No. 2 McKenzie exhausters, with 20-in. connections	3,700.00	
60	2 Greenfield vertical engines, 9 x 11	1,000.00	
61	2 Knowles dupl. pumps, 6 x 4 x 7	200.00	
62	Boiler house, 2 batteries, B. & W. type, etc.	19,000.00	
64	2 batteries, stack and bricking	2,000.00	
65	1 Sturtevant steel plate blower	1,300.00	
66	1 Gould & Garrison engine, 4½ x 8	200.00	
67	1 Paterson & Berryman feed water heater	200.00	
68	Carborator house, used as pump house,		
	House and machine shop, contents.	3,900.00	
69	Pump house, total contents	800.00	
70	Retort house, 11 benches of 6's (R-14-b)	40,000.00	
71	Accumulator house and 1 accumulator,		
72	1 salt-water tank,		
73	1 Davidson single pump, 14 x 8 x 14	2,000.00	
74	Yard, tar tanks	400.00	
75	Filter press, H-2 Johnson Filter Presses,		
76	1 ten-ton Howe scale	300.00	

5088

77	Miscellaneous tanks and boiler house	1,200.00	
78	Retort house, 22 benches,		
79	Total	188,200.00	79,800.00
80	2 holders, 600,000 c. f. (83)	150,000.00	
81	1 holder, 300,000 c. f. (84)	52,500.00	
82	1 holder, 100,000 c. f. (85)	30,000.00	
83	2 brick tanks,		
84	1 brick tank,		
85	1 brick tank,		
	Total	232,500.00	

5089 RECAPITULATION OF INVENTORY OF 18TH STREET BUILDINGS AND APPARATUS, CONSOLIDATED GAS COMPANY.

Total Actual 1st Cost of Buildings, and Structures, Bldgs...	$53,890.91	
Total Actual 1st Cost of Solid Walls	4,559.00	
Total Actual 1st Cost of Other Structures	7,480.00	
		$65,929.91
Total Actual 1st Cost of Gas . Making Appr.		15,000.00
Total Actual 1st Cost of Yard Connections (Mayer's)		21,987.00
Total Actual 1st Cost of Gas Holders and Tanks.....		286,000.00
Total Actual 1st Cost Subject to Depr.		388,917.00
Depreciation (50 years at .85 of 1%) 42½%		165,290.00
Actual Present Value of that part of 18th Street Station in use..		$223,627.00

NOTE.

Mayer's valuation, Brick and Brownstone Bldg. for holders (1905)		$155,784
Rowland's valuation, Brick and Brownstone Bldg. for holders (1884)		45,241
Excess valuation, Brick and Brownstone Bldg. for holders.		110,543

Apparatus not in use:

The principal items of abandoned apparatus appear to be (so far as visible)

5090 In Retort House.....60 benches 6's or 360 retorts.
In Purifying House.....12 Purifying Boxes.
In Yard .....2 Tower Scrubbers.
In Yard .....Multitubular Condensers.
In Meter House .....2-14 ft. Meters.

Also a vast amount of scrapped machinery.

See Mayer's testimony as to part of plant, Test. before Master, Page 1381.

5091 INVENTORIES OF BUILDINGS AND APPARATUS OF THE 18TH STREET GAS WORKS OF THE CONSOLIDATED GAS COMPANY OF NEW YORK CITY, 1906.

	Buildings only.	Total cost.	Values not computed.
1	5 Frame Sheds.....		
2	Engine, Valve and Exhauster House	2,350.50	
3	Valve House	836.00	
4	Boiler Houses	921.69	
5	Wagon Shed and Paint Shop.....	567.00	
6	Wagon Shed	441.00	
7	Brick and Brownstone Bldg. Holders	48,774.72	
8	Coal Storage Yards between 18th and 19th Streets.....		1,040.00
9	Coal Storage between 17th and 18th Streets		1,440.00
10	Brick Walls in Yard.....	959.00	
11	Timber Coal Hoisting Trestle.....		5,000.00
12	Coal Yard between 18th and 19th Sts.	3,600.00	
		53,890.91	7,480.00
	Walls.....	4,559.00	
	Values not computed c. f.....	7,480.00	
		65,929.91	

	Apparatus cost.	Act. cost.	Dep't cost.
13	Engine and Valve H—1-20 in. McKenzie Exhauster	1,600.00	
14	1 Greenfield Vert. Engine, 8 x 10..	500.00	
15	Counter Shafting, Pulleys, etc.....	100.00	
16	3 Kings Pressure Gauges.....	100.00	
17	1 Arch Gauge, Fire App. etc.....	100.00	
5092			
18	Building, Contents	200.00	
19	Boiler House, 1 Horz. Tubular Boiler	2,000.00	
20	1 Small Worthington Dupl. Pump..	100.00	
21	Pressure Gauges, Water Columns, etc.		
22	Lockers	100.00	
23	Stable, 12 Stalls	200.00	
24	1 Box Stall and Lockers.....		
25	Coal Storage Yard Trestle Work...	10,000.00	
		15,000.00	

26	Pipe Connections	21,987.00
33	2 Holders, 205,000 each (Housed).	82,000.00
34	2 Brick Tanks ($200).....	
35	4 Gas Holders, 255,000 each.....	
36	4 Tanks, 200	204,000.00
		286,000.00

5093 RECAPITULATION OF INVENTORY OF 63RD STREET BUILDINGS AND APPARATUS, CONSOLIDATED GAS COMPANY.

Total actual first cost of buildings and structures	$983	
Total actual first cost of walls (outside)..	3,520	
		$4,503
Total gas machinery, app. and contents.....		5,050
Total yard connections (Mayer).....		7,887
Total gas holder and tank.....		419,000
Total all manufacturing plant.....		$436,440
Depreciation 10 per cent.....		43,644
Actual present value of 63rd Street Station.....		$392,796

NOTE—

The buildings are a lot of tumble-down sheds.
Depreciation of holder estimated from appearance.

INVENTORIES OF BUILDINGS AND APPARATUS OF THE SIXTY-THIRD STREET GAS WORKS OF THE CONSOLIDATED GAS COMPANY OF NEW YORK CITY, 1906.

	Buildings only.	Total cost.	Values not computed.
1	Engine Room	336.00	
2	Valve house	252.00	
3	Boiler house	395.25	
4	Brick walls around property.....	3,520.00	
		$983.25	
	Walls	3,520.00	
		4,503.25	

5094

	Apparatus only.	Act. cost.	Dep. cost.
5	Engine room, 1 30 h.p. Morris engine, Rev. 10 x 8	1,300.00	
6	1 Sturtevant exhauster, connections, etc.	800.00	
7	Valve house, No. 1 photometer	650.00	
8	Boiler house, No. 1 66 x 16 Cont. Iron Works boiler	1,200.00	
9	1 Simplex Blake pump, 10 x 6	400.00	
10	1 Metropolitan injector	50.00	
11	In the yard, 1 Dup. pump, 12 x 6	300.00	
12	1 drip water tank	350.00	
		5,050.00	
13	Pipe and connections, 225-24 in. to 30 in.,	7,887.00	
14	80 1½ and 2,		
15	Valves		
16	1 No. 3 holder, 3,000,000 c. f. cap		152,000.00
17	Retaining wall, 200 ft.		
18	Brick tank		267,000.00
			419,000.00

5095 RECAPITULATION OF INVENTORY OF 65TH STREET BUILDINGS AND APPARATUS, CONSOLIDATED GAS COMPANY.

Total Actual 1st Cost of Buildings & Structures (1884)	$9,740		
Total Actual 1st Cost of Walls	34,000		
		$43,740	
Total Gas Manufacturing Machinery, App. & Cont.		10,350	
Total Yard Connection (Mayer)		20,406	
Total Gas Holders Not Depreciated			$880,000
Total Gas Holders Subject to Depreciation		333,000	
			$407,496
Depreciation (23 years at .85 of 1%) 20%			81,499
			325,997
Actual present value of 65th St. Station			$1,205,997

NOTE—The two holders of 4,000,000 cubic feet capacity each appear modern and in excellent condition and as I have not been able to learn their date of erection are not depreciated.

It is impossible in the brief time given to examine the retaining walls—their cost appears excessive.

5096 INVENTORIES OF BUILDINGS AND APPARATUS OF THE SIXTY-FIFTH STREET GAS WORKS OF THE CONSOLIDATED GAS COMPANY OF NEW YORK CITY, 1906.

	Buildings only.	Total cost.	Values not computed.
1	Engine & Valve House.....	1,745.00	
2	Exhauster House	5,103.00	
3	Boiler House	2,380.80	
4	Boiler House, Extension.....	512.00	
5	All Walls Around Property.....	[42,706.17]*	
		34,000.00†	
		9,740.80	
	Walls	42,706.17	
		[52,446.97]*	
		43,740.80†	
	Apparatus only.	**Act. cost.**	**Dep. cost.**
6	Engine & Valve House, contents, Exhauster House, one.....	400.00	
7	Rowland Vertical Engine, Small...	1,000.00	
8	1 30 in. McKenzie Exhauster.....	2,000.00	
9	1 Photometer Furniture, etc.....	1,000.00	
10	Boiler House, New Hor. Tub. Boilers, 48 x 10.....	2,000.00	
11	1 Hor. Tub. Boiler, 48 x 12.....	1,600.00	
12	1 #2 Niagara Feed Pump.....		
13	1 #4 Korting Injector	100.00	
14	1 Steel Stack with Connections....	200.00	
15	Boiler House Extension, 1 Hor. Tubular Inside Fire-box, complete	2,000.00	
16	1 #5 Korting Injector.....	50.00	
		10,350.00	
5097			
17	Connections, 68 & 30.....		
18	1½ in. & 2 in.....	16,327.00	See 28.
19	13 in. Valve.....		
20	16 in. Valve.....		
21	2 Holders, 325,000 c. f.....	55,000.00	
22	4 Holders, 325,000 c. f.....	100,000.00	No. Depr.
23	2 Holders, 4,100,000 c. f.....		400,000.00
24	6 Brick Tanks	178,000.00	
25	2 Brick Tanks		480,000.00
		333,000.00	880,000.00

[* Figures enclosed in brackets erased in copy.]
† Corrected Jan. 8, 1907.

5098 RECAPITULATION OF INVENTORY OF 111TH STREET STATION, CONSOLIDATED GAS COMPANY, NEW YORK CITY.

Total actual first cost of buildings and Structures,			
Buildings not depr.			$20,921.53
Buildings depreciated		$64,290.70	
Walls and fences depr.		4,010.00	
Total actual first cost gas mach., app. (depr.)		93,000.00	
Total actual first cost of gas mach., app. (not depr.)			20,900.00
Total actual first cost yard connections (Mayer)			27,068.00
Total actual first cost gas holders and tanks			704,737.00
Subject to depreciation		$161,300.70	
Depreciation (36 years, at .85 of 1%)	30%		
Depreciation, neglect and decay	30%		
	60%	96,780.00	
			64,520.70
Actual present value of 111th St. Station			$838,147.00

NOTE—

The old retort and generator houses and their contents are open to the weather through large openings in the roof.

The fences, walls and apparatus at the wharf are falling into decay.

The 21 benches of the retorts are old fashioned, and can never be used satisfactorily.

Capacity equivalent to 242 single retorts.

5099 INVENTORIES OF BUILDINGS AND APPARATUS OF THE 111TH STREET GAS WORKS OF THE CONSOLIDATED GAS COMPANY OF NEW YORK CITY, 1906.

	Buildings only.	Total cost.	Values not computed.
1	Office (17)	5,931.25	
2	Exhauster house	18,352.82	
3	Boiler house	2,568.71	
4	Hoisting engine house	81.90	
5	Scale house	351.00	
6	Stable	8,400.00	
7	Boiler, coal storage		600.00

8	Generator house	9,331.20	
9	Wooden tool shed	1,418.63	
10	Retort house (R. inc. Mains)	36,900.00	
11	Foundations for old oil tanks		1,000.00
12	Blacksmith shop (machine shop)	1,679.60	
13	Fences		270.00
13	Fences around holders		1,140.00
15	Fences around old works		1,000.00
16	Brick walls on 1st Ave	197.12	
		85,015.11	4,010.00
	Walls	197.12	
	Values not com. in c. f	4,010.00	
		89,222.23	

	Apparatus only.	Act. cost.	Dep. cost.
17	Office bldg., contents (1)		2,500.00
18	Exhauster house, 42 valve stands		700.00
19	2 No. 11 vertical Root exhausters		900.00
20	Paine Revers.		
	Motion engine, 16 x 16		3,600.00
5100			
21	Two thirty-six Connely gas governors		4,500.00
22	1 Cockraine feed water heater		400.00
23	Steam exhaust gauge, piping, etc		1,600.00
24	1 photometer		800.00
25	Boiler house, 1 G. steel stack		500.00
26	Breech for stack		200.00
27	3 boilers, 66 in. x 66 ft		5,000.00
28	1 Knowles pump, 6 x 4 x 7		100.00
29	1 11½-in. Hancock inspirator		100.00
30	Hoisting engine house, contents	1,100.00	
31	Scale house, contents (Scale)	300.00	
32	Stable, 32 stalls	600.00	
33	Tool shed	300.00	
34	Retort house, 16 benches of 6's	64,000.00	
35	5 benches of 5's	17,500.00	
36	Blacksmith shop, contents	200.00	
37	Yard oil tank, 43 x 20	3,000.00	
38	Atmospheric condenser	6,000.00	
		93,000.00	20,900.00
39	24 in. x 36 in. connection,		
40	11½ in. to 4 in.		
41	Valves,		
42	2 holders, 5,000,000 cap.		
43	Foundations for holders		704,737.00

5101 RECAPITULATION OF INVENTORY OF 132ND STREET BUILDINGS AND APPARATUS, CONSOLIDATED GAS COMPANY.

Total actual 1st cost of Buildings & Structures....	$30,000	
Total actual 1st cost of Chimney.....	3,000	
		$33,000
Total gas machinery and apparatus.....		18,450
Total yard connection (Meyer).....		47,714
Total gas holder and tank.....		394,000
Actual present value of 132nd St. Station.....		$493,164

5102 INVENTORIES OF BUILDINGS AND APPARATUS OF THE 132ND STREET GAS WORKS OF THE CONSOLIDATED GAS COMPANY OF NEW YORK CITY, 1906.

	Buildings only.	Total cost.	Values not computed.
1	Governor & Boiler House.....	30,000.00	
2	Boiler Chimney.....		3,000.00
		30,000.00	3,000.00
	Value Not Computed, c. f.....	3,000.00	
		33,000.00	

	Apparatus only.	Act. cost.	Dep. cost.
3	Governor & Boiler House, 1 #11½ Vertical Exhauster.....	3,000.00	
4	One 16½ x 24 Hor. Buckeye Engine	3,000.00	
5	One 24 in. Connelley Gas Cov.....	1,200.00	
6	3 B. & W. Boilers and 2 Batteries..	8,000.00	
7	One 6 x 4 Knowles Dup. Plunger Pump.....	150.00	
8	One #6 Cockrane Feed Water Heater.....	500.00	
9	One #10 Steel Plate Breeching....	750.00	
10	One 3 in. Crown Water Heater....	150.00	
11	One #12½ Metropolitan Injector..		
12	One Blow-off Tank, 3 in. x 10.....	100.00	
13	One 8 in. Hudson Exh. Head.....	1,500.00	
14	Toilet, etc.....	100.00	
15	Connections	18,450.00	
16	Valves		
17	One Holder, 5,000,000 Cap.....	347,000.00	
18	Foundation for Holder.....	47,000.00	
19	Total Value of Bldgs.....	349,000.00	
20	Total Value of Apparatus.....		
21	Total Value of Connections.....	47,714.00	
22	Total Value of Holders.....		

5103 RECAPITULATION OF INVENTORY OF INWOOD STATION BUILDINGS AND APPARATUS, CONSOLIDATED GAS COMPANY.

Total actual 1st cost of Building (1889)	$1,373
Total Gas Machinery	2,300
Total Yard Connections (Mayer)	923
Total Holders 1 Tank	6,000
Actual present value of Inwood Station	$10,596

NOTE—Holder not in use (boarded tank) and counter weights taken off.

INVENTORIES OF BUILDINGS AND APPARATUS OF THE INWOOD GAS WORKS OF THE CONSOLIDATED GAS COMPANY OF NEW YORK CITY, 1906.

	Buildings only.	Total cost.	Values not computed.
1	Exhauster & Valve House, 1886...	1,372.80	
	Apparatus only.	Act. cost.	Dep. cost.
2	Exhauster & Engine Blr., 1898...	2,000.00	
3	Connections		
4	80—1 to 12 W. I. connections.....		
5	Valves	300.00	
6	1 Holder, 60,000 c. f. cap., 1889...	12,000.00	No value
7	Brick Tank.....	6,000.00	
8	Total Value of Buildings (Meyer)..		
9	Total Value of Apparatus (Meyer).		
10	Total Value of Connections (Meyer)		
11	Total Value of Holders (Meyer)...		
		20,300.00	

5104 Mr. BURR: I think that embraces all of them, Doctor.

The WITNESS: That embraces all.

Q. Take for instance the 21st Street station, the recapitulation there, you state on the second line "average, date 1874," referring to the buildings and structures. What do you mean by that?

A. Looking over the detailed items of the subsequent sheet the buildings are mentioned as having been built in 1860, in 1865, in 1873, 1874, 1883, 1890. As near as I could figure it, 1874 was the average date of the buildings, of all the buildings.

Q. Now then, in the schedule annexed to the recapitulation of inventory at 23d Street, buildings and apparatus, in the first column you have given buildings only, have you—you have taken the buildings alone?

A. The buildings alone.

Q. And the first column shows the total cost or value as given by you?

A. It does.

Q. Now, there is another column I noticed headed "Values not computed;" what do you mean by that?

A. There are certain portions of the buildings which could not very well be computed, such as—for instance foundations for a steel tank, $20,000, two little walls coming across the corner of the land and forming the small storehouse, the cubical or hollow contents of these details could not be obtained as could the cubical or hollow contents of the buildings.

Q. Point out some instance in that inventory of the buildings at the 21st Street station of which you are speaking about—foundation for steel tank?

A. Foundation for steel tank.

By Mr. MATHEWSON:

5105 Q. Does this $20,000 cover the last four items on that column, 43, 44, 45, 46?

A. It does not. Oh, yes, it does. It does. My typewriter substituted a row of zeros instead of putting in a bracket as I had put in in my original.

By Mr. BURR:

Q. In the next page showing the apparatus only, the first column shows the actual cost or value as placed by you on each item of the apparatus?

A. It does. The cost new.

Q. And the second column shows the depreciation?

A. It shows what is called the depreciated cost. I mean by that cost from which no depreciation is taken.

By Mr. MATHEWSON:

Q. Do you mean that that second column is the value after depreciation is deducted?

A. Referring to item 99 three salt water condensers, $90,000, it means that there is no depreciation taken from that price at all in the final summation.

Q. And that is true also as to items 101 and 102?

A. Yes.

Q. And the other items which appear?

A. And the subsequent items as far down as——

Q. 169 and 170?

A. 170 is the last item.

By Mr. BURR:

Q. And that is true of all the schedules which you have made and which you have handed to the stenographer regarding each of the stations?

A. That same method has been adopted with regard to each station.

Q. Have you prepared as the result now of your examination of the plants and of the mains a final estimate of the actual present

value of the total investment in the works of the Consolidated Gas Company?

A. I have.

5106 Mr. MATHEWSON: That includes your previous estimate on mains and so forth?

Mr. BURR: Yes, and the previous testimony that has been given.

Q. By the works you mean the plants?

A. Yes, everything.

Mr. BURR: With the exception of explaining to you the other schedules which are for your information and which he has here, that will make Dr. Marks' testimony complete.

By the MASTER:

Q. What did I understand you to give as the total valuation of all these plants, including the buildings and apparatus, connections and holders?

A. $9,348,692.

Mr. MATHEWSON: That is after deductions of depreciation?

Mr. BURR: Less depreciation.

Q. Does that exclude or include so much of that 18th Street plant as was taken by the city in condemnation?

A. It excludes so much of the 18th Street station as was abandoned by the Consolidated Gas Company.

Mr. MATHEWSON: That is the same thing. The city took it.

Mr. BURR: That appears upon his summation of each station.

Mr. MATHEWSON: Do these estimates show the total estimate of the Doctor without deduction of these depreciation percentages which he has assumed?

By Mr. BURR:

Q. The schedules of inventories which you prepared for
5107 each individual station, do these show the grand total without depreciation, and also with the depreciation?

A. The original structural value of every building and of every piece of apparatus is given in detail but not footed up in detail in every case. The depreciation is not given for each detail but given for the summation of all the details in each plant.

Mr. MATHEWSON: I do not think you quite understand what I had in mind and what I think Mr. Burr asked—that was whether the schedules show a total for plant and buildings without depreciation corresponding to that total of $9,348,692 after deduction of depreciation?

A. They do not.

By Mr. MATHEWSON:

Q. The totals could be figured from your schedules, could they—you have given the cost?

A. Yes.

Q. The final estimate was prepared by you and shows what are the total value of the——

A. The total actual structural cost of the Consolidated Gas Company's gas works, $23,460,020. The actual apparent present value of the Consolidated Company's investments as $31,122,452.

Q. And then what do you make the estimated cost per annual thousand cubic feet of sales based on structural cost of land and structural cost of buildings and so forth?

A. The investment per annual thousand cubic feet of sales appears to be $2.02, of which $1.18 is based upon the structural cost of land and buildings, apparatus and holders, and $0.84 is based upon the structural cost of street mains, value of services and meters.

Q. And this summary which you have perpared shows the details, upon which you base those conclusions?

A. It does, and it is as follows:

5108 FINAL ESTIMATE OF THE ACTUAL PRESENT VALUE OF THE TOTAL INVESTMENT IN THE WORKS OF THE CONSOLIDATED GAS COMPANY, NEW YORK CITY.

R. E.—		
Original cost of land to six merged Companies, City Ex. 87, p. 1562.....		$3,377,971.10
Balance cost of land transactions, Consolidated Gas Company, since 188-, City Exh., 87, p. 1576.....		740,296.28
Total.....		$4,118,267.38
Abandoned (not paid for) City's condemnation (estimated) ..		
Bulkheads at 16th, 17th and 18th Streets, Hudson R.....	$317,100.00	
Land at 18th St. Station, Parcel 4, Exhs. 48 and 49.....	875,916.37	
		1,193,016.37
Actual structural (original) cost of land used for gas making.		$2,925,251.00
Mfg. Plants—		
Actual present value of operative buildings and gas apparatus		9,348,692.00

St. Mains—		
Actual structural cost of Street Mains, City Exh. 89.....	$7,141,232.00	
Allowance for 620,019 ft. of obsolete 2-3-4 and 5 mains..		
Cost of 620,019 ft. 6-in. mains under new pavement .. $1,641,655		
Cost of 620,019 ft. of Removed 2-3-4 and 5 mains.... 624,435		
	1,017,220.00	
		6,124,012.00
Cost Mains in Bronx, Comp. Ex. 91.....		47,450.00
Services—		
Cost Services, Comp. Exh. 81, p. 350 (Oct. 31, 1905, Co.'s Books)		1,212,071.00
5109 Meters, Etc.—		
Cost Meters and Misc., Comp. Exh. 81, p. 350 (Oct. 31, 1905, Co.'s books).....		3,802,544.00
Total actual structural cost Cons. Co.'s Gas Works.....		$23,460,020.00
(NOTE.—See Marks' Test. before Master, p. 2353, fixing $23,644,030.)		
Increase in Value of Land—		
Estimated present value of land, Thompson's Est., p. 2902, Test.	$10,486,356.15	
McHale's Est., p. 2871, Test...	10,689,013.14	
Average	10,587,685.00	
Less Structural cost of land for Gas making	2,925,251.00	
Increased value accrued upon land owned by Company....		7,662,434.00
Apparent present actual value of Consolidated Gas Co.'s invests		$31,122,454.00

CONSOLIDATED GAS COMPANY.

Estimated cost per annual 1,000 cu. ft. of sales 1905.

Structural cost of land.....	$2,925,251	
Structural cost of Bldg., Apparatus & Holders.....	9,348,692	
Total divided by 10,419,461 M.	12,263,943	Gives per annual M.$1.18
Structural value of street mains	6,171,462	
Structural value of services..	1,212,071	
Structural value of Meters...	3,802,544	
Total divided by 13,283,164 M.	$11,186,077	Gives per annual M.$0.84
Structural investment per annual M. (See Test. p. 2335.)		Gives per annual M.$2.02

5110 By Mr. BURR:

Q. Did you prepare yourself the statements which you have handed in to me and which I have handed to the stenographer?

A. I did, personally, with my own hand.

Q. In addition to what you have handed me you have also prepared in detail, have you not, inventories of the buildings and apparatus of the various works of the Consolidated Gas Company, showing so far as you have been able to ascertain regarding buildings the date of installation or erection, the actual cost as given by Rowland in 1884, the cost given by Mr. Mayer in 1906, the cost with depreciation shown given by Mr. Mayer in 1906, the ground area, the cubical contents of the superstructure, cost per square foot, cost per cubic foot, cubical contents including basements, cost per cubic foot and total cost?

A. I have.

Q. And these you have here with you now, have you?

A. I have.

Mr. MATHEWSON: I do not understand that that schedule you just referred to you intend to put on the record at all. I do not think it would be valuable and I do not think it is possible to take Mr. Rowland's figures on buildings and apply them to the buildings as they exist to-day, without taking into account the replacements and additions and one thing or another that have been made and say they are comparisons with the same buildings, and for that reason, among others, I should object if you wanted to offer it. So far as a tabulation is concerned, that is another thing.

Mr. BURR: The buildings in Rowland's appraisement were
5111 described and the sizes given just the same as Mr. Mayer has described them and given the sizes in 1906.

Mr. MATHEWSON: They have differed materially, many of them, in construction, in one way or another. In addition, Mr. Mayer, when he estimated put the foundations of apparatus in his cost of buildings while Rowland did not, as I understand it.

Mr. BURR: I ask to have these various inventories marked for identification.

The papers are marked as follows:

21st St. plant, City's Ex. for identification..... 125
42d St. plant, City's Ex. for identification..... 126
99th St. plant, City's Ex. for identification..... 127
44th St. plant, City's Ex. for identification..... 128
Inwood plant, City's Ex. for identification..... 129
111th St. plant, City's Ex. for identification..... 130
132d St. plant, City's Ex. for identification..... 131
18th St. plant, City's Ex. for identification..... 132
63d St. plant, City's Ex. for identification..... 133
65th St. plant, City's Ex. for identification..... 134
14th St. plant, City's Ex. for identification..... 135

Mr. BURR: That is all that I desire to ask of Dr. Marks, and under the agreement which seems to have been arrived at, the next in order is the testimony of the other witness with regard to the valuation of these plants.

Mr. MATHEWSON: You mean Mr. Edgerton?

Mr. BURR: Mr. Edgerton.

Mr. MATHEWSON: I understand that Mr. Edgerton's figures are completed and that they are merely being tabulated and written out.

Mr. KIRBY: That is quite so, Mr. Mathewson. Mr. Edgerton has prepared schedules in somewhat different form to be sure,
5112 from those of Dr. Marks, but none the less giving the details as in pretty much the same method used by Dr. Marks. They are not as yet from the typewriter, and we will not be in a position to present them until Monday morning. They will give the cost, the depreciation and the value of the buildings and the apparatus, the holders and tanks and the yard connections, following the order used by Mr. Marks.

The MASTER: And you will put them in succinctly as Mr. Burr has done, just calling a witness and putting the schedules in?

Mr. KIRBY: Yes, Mr. Master.

The MASTER: Then your direct-examination will not take say over an hour?

Mr. KIRBY: Probably half an hour.

Mr. MATHEWSON: Do I understand that that ends all the defendant's cases?

Mr. KIRBY: It ends our case.

Mr. BURR: It ends my case except I may want to read some evidence on the record. That is all.

The MASTER: How about the suggestion of something about Prof. Bemis that was made at the last hearing?

Mr. BURR: I have received a letter from Dr. Bemis saying that he

is convalescent. He is anxious to come on but we are not anxious to have him come on until he has entirely recovered, it being a malignant disease which he has suffered from. I wanted to get in simply, and I think Brother Mathewson could well afford to allow it in without any more ado, the authenticity of the letters showing the increase in population, the ratio of increase in population in the Borough of Manhattan, City of New York, coming from the
5113 public officials of Washington, and the letters showing that there has been a reduction in the price of gas at Lynn. Now, that is all that I would have to call him to give testimony regarding, and I would not like to hold up or hold our case unclosed for that reason. I think Mr. Mathewson on second thought can well say that he has no objection to allowing us to put*ting* them in. With that exception, and calling your attention to various papers, that would be the end of our case. We ought not consume—we will not consume Monday in finishing up our defence.

Mr. MATHEWSON: I think, Mr. Master, in view of the terms of the Court's order and in view of the manner in which the defence is introduced that I should not cross-examine these witnesses until they have completed their testimony on value of plants. I do not see how I very profitably could do so.

The MASTER: Well, that seems to have been the sense of opinion among counsel, that you had better have both statements in as to values.

Mr. KIRBY: It is quite immaterial to us. We can go on on Monday morning with Mr. Edgerton and our testimony will be put in in the manner which I have indicated, or if Mr. Mathewson prefers he can take up the cross-examination of Dr. Marks.

Mr. MATHEWSON: No. Mr. Kirby, it may be quite likely that the cross-examination of one witness on a certain point may bring out the situation clearly so that I would not have to touch the next witness, at all on that same point, and I do not think we would gain time. Besides, I think that I am entitled under the order
5114 of the Court, as it is construed, and also as it is Mr. Burr's view, to have your testimony first presented and then I will cross-examine.

Mr. KIRBY: Very good, sir.

The MASTER: Can you proceed, Mr. Burr, with such documentary evidence as you say you want to put in? You said you were going to read something in evidence. Can you do that now?

Mr. BURR: No, I can do that on Monday. I haven't even made up my mind that it will be necessary.

The MASTER: Then apparently there is nothing more we can do to-day, in which case we will adjourn until Monday, January 7, 1907, at 10.30 A. M.

Adjourned to January 7, 1907, at 10.30 A. M.

Last Exhibits:

Complainant's 270.
State's OOO.
City's 135.

5115 Circuit Court of the United States, Southern District of New York.

CONSOLIDATED GAS COMPANY OF NEW YORK, Complainant,

vs.

JULIUS M. MAYER, as Attorney General of the State of New York; WILLIAM TRAVERS JEROME, as District Attorney of New York County; FREDERICK E. GUNNISON, JOHN C. DAVIES, and LUCIAN L. SHEDDEN, Constituting the New York State Commission of Gas and Electricity, and THE CITY OF NEW YORK, Defendants.

Before Arthur H. Masten, Special Master.

NEW YORK, *January* 7, 1907—10.30 a. m.

(Met pursuant to adjournment.)

Present: The Master, Mr. Mathewson, Mr. Burr, Mr. Page, Mr. Kirby.

5116 HENRY H. EDGERTON, recalled on behalf of the State.

Direct examination by Mr. PAGE:

Q. Have you inspected and examined all the plants of the Consolidated Gas Company on the Island of Manhattan?

A. Yes, sir.

Q. Have you made an appraisal of these plants exclusive of the real estate upon which they are situated?

A. I have.

Q. In making this appraisal did you make up an inventory of your own, or did you adopt the inventory furnished by Mr. Mayer?

A. I used Mr. Mayer's inventory and his measurements with the exception of a few where I made my own and checked—I did not have an opportunity to enter into all the measurements.

Q. Did you make some measurements yourself?

A. I did.

Q. Did you compare these measurements with those given by Mr. Mayer in his testimony or in his inventory as furnished?

A. Yes.

Q. Did you find the measurements given by Mr. Mayer to be in all instances correct?

A. No, sir; not in all instances, no, sir.

Q. In making your appraisal of the yard connections did you inspect and examine the yard connections?

A. As much as was possible, but most of these connections were underground and therefore in regard to the value of the yard connections I had to base it on the capacity of the plant as is usually required for the output of gas for the plants. That is, there is a certain factor that will give the ordinary connection necessary for gas and tar throughout the works, and I adopted that in place of a complete measurement of the connections. Another reason being that those works have been changed a number of times. They

started out as coal gas works, and then changed to Tessie du Motay process works, and then into Lowe process works, which in-
5117 volved undoubtedly a considerable amount of duplication.

Q. How long have you been engaged in making your appraisal?

A. About three weeks, in addition to the time taken before this last effort to get an appraisal.

Q. When did you complete the appraisal and preparation?

A. I completed it on Friday up — the point of getting it together and having it typewritten and put in shape on Friday evening.

Q. Have you made any change in your appraisal since Friday evening?

A. No, sir, I have not; except I started out to correct certain errors I saw in the typewritten report in regard to a duplication of some of the amounts, particular cases where Mr. Mayer's appraisal and my own had been added together.

Q. During the time that you have been engaged in making your appraisal have you been in consultation with Mr. Marks, the expert for the city?

A. No, sir, I have not. I have not met Dr. Marks except at the first station—the 14th Street station, where we went through together with Engineer Lacombe.

Q. Now, have you the appraisal as prepared by you?

A. I have.

Q. Will you explain how this has been prepared—I mean the manner of this arrangement?

A. The work has been taken station by station and the buildings aggregated, the apparatus, following the division adopted by Mr. Mayer, and then the details calculated out and corrected by myself and aggregated into this typewritten copy.

Q. Now, in the 14th Street station, how have you prepared your values of apparatus?

A. In regard to the 14th Street plant there was some of the apparatus that I was not enabled to calculate and I adopted Mr. Mayer's figures for the reason that I had not any opportunity to make a calculation of my own.

5118 Q. And how about your former testimony as to the 14th Street plant?

A. Yes, substantially, as far as I checked it off and compared it, it agrees with my former testimony in regard to the 14th Street station, and is entered in the appraisal in that shape.

Q. And you have, as I understand, for such items of apparatus on which you agree with the figures given by Mr. Mayer, or as to certain machinery where you had not the information, adopted Mr. Mayer's appraisal and carried that out in this appraisal of yours?

A. I have. There were many small items and some large ones that I was unable to calculate out or get an account of on account of the number.

Q. You have figured as to each item the depreciation by reason of physical deterioration?

A. I have. I put on the depreciation figure as near as I could arrive at it. I had some trouble in arriving at some of the machinery

on account of the depreciation going on interiorly and not knowing exactly the age the depreciation figure is put down according to its appearance and the amount of usage it apparently had.

Mr. PAGE: Now, we will offer in evidence the schedule which the witness has prepared.

Mr. MATHEWSON: It is offered as part of his testimony rather than to have him repeat it orally?

Mr. PAGE: Yes, that is the idea, as long as you are going to take time to cross-examine him I thought that would be the better way.

Mr. MATHEWSON: Yes; I have no objection to taking it in in that way. I object, however, on the ground that the witness has not been shown competent to testify to values in the City of New York.

Objection overruled.

Exception.

The WITNESS: My schedules of the various plants are as follows:

5119 CONSOLIDATED GAS COMPANY.

Value of all Plants January, 1907.

Fourteenth Street	$1,405,966.00
Forty-second Street	1,008,801.25
Forty-fourth Street	1,110,878.00
Twenty-first Street	2,176,492.00
Ninety-ninth Street	544,708.00
Eighteenth Street	234,886.00
Sixty-third Street	623,740.00
Sixty-fifth Street	892,171.00
One Hundred & Eleventh Street	900,406.00
One Hundred & Thirty-second Street	457,524.00
Inwood	11,772.00
Total	$9,367,344.25
Add to above values for engineering, superintendence and inspection, 3 per cent.	281,020.00
Add for interest on moneys necessary to be used during construction, 4 per cent.	374,693.00
Complete value	$10,023,057.25

FOURTEENTH STREET PLANT.

Summary of Values, January, 1907.

Buildings	$334,960.00
Apparatus	498,806.00
Yard Connections	25,500.00
Holders and Tanks	546,700.00
	$1,405,966.00

5120 FOURTEENTH STREET STATION BUILDINGS.

Office Building (Mayer, p. 1351).

42 ft. x 32 ft. 6 in. x 23 ft. 9 in.

Cost to build, complete, new materials...	$5,750	
Depreciation by reason of physical deterioration, 15 per cent.		
Value		$4,890

Pay Room (Mayer, p. 1351).

2 Story brick building, 12 in. wall, 28 ft. 1 in. x 13 ft. 1 in. x 23 in.

Cost to build complete, new materials...	$3,000	
Depreciation by reason of physical deterioration, 15 per cent.		
Value		$2,550

Building Over Alley (Mayer, p. 1351).

1 Story, 11 ft. wide, 28 ft. 1 in. x 10 ft. 10 in.

Cost to build complete, new materials...	$650	
Depreciation by reason of physical deterioration, 15 per cent.		
Value		$550

Store Room (Mayer, p. 1351).

2 Story building, 21 ft. 9 in. x 28 ft. 1 in. by 23 ft. high.

Cost to build complete, new materials...	$2,800	
Depreciation by reason of physical deterioration, 15 per cent.		
Value		$2,400

Boiler Room (Mayer, p. 1351).

1 Story building, 28 ft. x 44 ft. x 28 ft. high.

Cost to build complete, new materials...	$3,500	
Depreciation by reason of physical deterioration, 15 per cent.		
Value		$3,000

5121 Engine Room (Mayer, p. 1351).

2 Story building and attic, 44 ft. x 13 ft. 10 in. x 24 ft. 9 in.

Cost to build complete, new materials...	$4,800	
Depreciation by reason of physical deterioration, 15 per cent.		
Value		$4,080

Exhauster House (Mayer, p. 1351).

2 Story building, 28 ft. 1 in. by 20 ft. 6 in. x 23 ft. high.

Cost to build complete, new materials...	$4,200	
Depreciation by reason of physical deterioration, 15 per cent.		
Value		$3,570

Machine Shop and Store (Mayer, p. 1351).

47 ft. x 28 ft. x 23 ft.

Cost to build complete, new materials...	$4,200	
Depreciation by reason of physical deterioration, 15 per cent.		
Value.		$3,570

Smith Shop (Mayer, p. 1351).

35 ft. x 52 ft. 2 in. by 23 ft.

(Dimensions stated in Schedule as 38 ft. x 52 ft. 2 in. x 23 ft., latter used in making estimate).

Cost to build complete, new materials...	$5,300	
Depreciation by reason of physical deterioration, 15 per cent.		
Value		$4,500

Condenser House (Mayer, p. 1351).

1 Story building, 54 ft. 1 in. x 34 ft. 6 in. x 27 ft. high.

Cost to build complete, new materials...	$7,500	
Depreciation by reason of physical deterioration, 15 per cent.		
Value		$6,400

5122 Shed (Mayer, p. 1351).

1 Story building, galvanized iron sides, 38 ft. 3 in. x 38 ft. x 11 ft. 6 in. high.

Cost to build complete, new materials...	$3,000	
Depreciation by reason of physical deterioration, 10 per cent.		
Value.	$2,700	
Deduct for unnecessary Pile Foundations	1,000	
		$1,700

Large Purifier (Mayer, p. 1351).

Purifier House, 67 ft. x 127 ft. x 24 ft. high.

Cost to build complete, new materials...	$33,000	
Depreciation by reason of physical deterioration, 15 per cent.		
Value		$28,000

Small Purifier House (Mayer, p. 1351).

40 ft. 5 in. 67 ft. x 16 ft. 6 in.

Cost to build complete, new materials...	$11,500	
Depreciation by reason of physical deterioration, 15 per cent.		
Value		$10,000

Oxide House (Mayer, p. 1351).

37 ft. 10 in. x 67 ft. x 16 ft. 6 in. high.

Cost to build complete, new materials...	$6,300	
Depreciation by reason of physical deterioration, 15 per cent.		
Value		$5,400

METER HOUSE (Mayer, p. 1351).

33 ft. 7 in. x 40 ft. 4 in. by 24 ft. high.

Cost to build complete, new materials...	$6,000	
Depreciation by reason of physical deterioration, 10 per cent.		
Value		$5,400

5123 CENTER SEAL HOUSE (Mayer, p. 1352).

16 ft. x 16 ft. 2 in. x 14 ft. 9 in. high.

Cost to build complete, new materials...	$1,500	
Depreciation by reason of physical deterioration, 10 per cent.		
Value		$1,350

CENTER SEAL HOUSE (Mayer, 1352).

(Dimensions as above.)

Cost to build complete.....	$1,500	
Depreciation by reason of physical deterioration, 10 per cent.		
Value		$1,350

BOILER HOUSE (Mayer, p. 1352).

1-story brick building 15 ft. 2 in. x 38 ft. 10 in. x 16 ft. 6 in.

Cost to build complete, new materials...	$4,500	
Depreciation by reason of physical deterioration, 10 per cent.		
Value		$4,000

VALVE HOUSE (Mayer, p. 1352).

1-story and basement brick building, 12 ft. 3 in. x 21 ft. 4 in. x 12 ft. 6 in.

Cost to build complete, new materials...	$1,000	
Depreciation by reason of physical deterioration, 10 per cent.		
Value		$900

RETORT HOUSE (Mayer, p. 1352).

1-story brick building, 185 ft. 9 in. x 245 ft. 4 in. x 22 ft. 9 in.

Cost to build complete, new materials...	$80,000	
Depreciation by reason of physical deterioration, 20 per cent.		
Value.		$60,000

5124 SCRUBBER HOUSE (Mayer, p. 1352).

1-story brick building, 48 ft. 3 in. x 12 ft. x 16 ft. 5 in.

Cost to build complete, new materials...	$2,100	
Depreciation by reason of physical deterioration, 15 per cent.		
Value		$1,800

BRICK WALL AROUND HOLDER YARD.

(Mayer, p. 1352).

North wall, 351 ft. 2 in. long; south wall, 366 ft. 6 in.; west wall, 207 ft.

Cost to build complete, new materials...	$13,500	
Depreciation by reason of physical deterioration, 20 per cent.		
Value		$10,800

WALL BETWEEN AVES. C & D (Mayer, p. 1352).

23 ft. 7 in. on 14th Street and 245 ft. 4 in. on 15th Street, etc.

Cost to build complete, new materials...	$9,000	
Depreciation by reason of physical deterioration, 20 per cent.		
Value		$7,200

SHED (Mayer, p. 1353).

75 ft. 6 in. x 21 ft. 6 in. x 17 ft.

Cost to build complete, new materials...	$3,500	
Depreciation by reason of physical deterioration, 10 per cent.		
Value		$3,200

SHED (Mayer, p. 1353).

(Dimensions as above.)

Cost to build complete, new materials...	$3,500	
Depreciation by reason of physical deterioration, 10 per cent.		
Value		$3,200

5125 COKE STORAGE (Mayer, p. 1353).

131 ft. 6 in. x 63 ft. 8 in.

Cost to build complete, new materials...	$9,500	
Depreciation due to physical deterioration, 25 per cent.		
Value		$7,000

GAS ENGINE HOUSE (Mayer, p. 1353).

1-story br-ck building, 13 ft. 3 in. x 41 ft. 6 in. x 11 ft. 3 in.

Cost to build complete, new materials...	$1,000	
Depreciation due to physical deterioration, 10 per cent.		
Value		$900

COAL HOPPER (Mayer, p. 1353).

21 ft. 6 in. x 36 ft. x 32 ft. 7 in., 1 story.

Cost to build complete, new materials...	$4,000	
Depreciation due to physical deterioration, 10 per cent.		
Value		$3,600

COAL SHED (Mayer, p. 1353).

1-story brick building, 184 ft. 5 in. x 206 ft. 6 in. x 26 ft. 6 in.

Cost to build complete, new materials...	$70,000	
Depreciation by reason of physical deterioration, 10 per cent.		
Value		$63,000

RIGGING HOUSE (Mayer, p. 1353).

2-story building, 22 ft. long x 13 ft. 6 in. x 20 ft. high (end of coal shed).

Cost to build complete, new materials...	$700	
Depreciation by reason of physical deterioration, 10 per cent.		
Value		$630

5126 SMALL OFFICE BUILDING (Mayer, p. 1353).

10 ft. x 10 ft. x 10 ft. high.

Cost to build complete, new material....	$100	
Depreciation by reason of physical deterioration, 20 per cent.		
Value		$80

COAL & COKE STORAGE (Mayer, p. 1353).

Walls of various dimensions as set down in testimony.

Cost to build complete, new material....	$20,000	
Depreciation by reason of physical deterioration, 20 per cent.		
Value		$16,000

BOILER ENGINE HOUSE (Mayer, p. 1353).

1-story brick building, 11 ft. x 25 ft. x 20 ft.

Cost to build complete, new material....	$2,500	
Depreciation by reason of physical deterioration, 10 per cent.		
Value		$2,250

BOILER HOUSE (Mayer, p. 1353).

16 ft. x 28 ft. 1 in. x 11 ft.

Cost to build complete, new materials...	$1,200	
Depreciation by reason of physical deterioration, 15 per cent.		
Value		$1,000

CIRCULAR BRICK BUILDING (Mayer, p. 1353).

11 ft. diameter, 54 ft. high.

Cost to build complete, new materials...	$1,500	
Depreciation by reason of physical deterioration, 10 per cent.		
Value		$1,350

5127 BOILER HOUSE (Mayer, p. 1353).

1-story frame building, 32 ft. 5 in. x 16 ft. x 11 ft. 6 in.

Cost to build complete, new materials...	$1,300	
Depreciation by reason of physical deterioration, 15 per cent.		
Value		$1,100

VALVE HOUSE (Mayer, p. 1353).

1-story frame building, 12 ft. 4 in. x 10 ft. 4 in. x 9 ft. 6 in.

Cost to build complete, new materials...	$200	
Depreciation by reason of physical deterioration, 15 per cent.		
Value		$170

EXHAUSTER HOUSE (Mayer, p. 1353).

1-story and basement brick building, 50 ft. 8 in. x 43 ft. 4 in. x 20 ft. 3 in.

Cost to build complete, new materials...	$15,000	
Depreciation by reason of physical deterioration, 5 per cent.		
Value		$14,250

BOILER HOUSE (Mayer, p. 1354).

1-story brick building, 27 ft. 8 in. x 32 ft. x 20 ft. 2 in.

Cost to build complete, new materials...	$3,500	
Depreciation by reason of physical deterioration, 15 per cent.		
Value		$3,000

COKE OFFICE (Mayer, p. 1354).

1-story brick building, 9 ft. 5 in. x 15 ft. 5½ in. x 13 ft. 10 in.

Cost to build complete, new materials...	$650	
Depreciation by reason of physical deterioration, 15 per cent.		
Value		$550

5128 BOILER HOUSE (Mayer, p. 1354).

1-story brick building, 18 ft. 5 in. x 19 ft. 2½ in. x 17 ft. ½ in., or an average of 16 ft. high.

Cost to build complete, new materials...	$4,000	
Depreciation by reason of physical deterioration, 15 per cent.		
Value		$3,400

CLAY MILL & STORAGE (Mayer, p. 1354).

1-story frame building, 17 ft. ½ in. x 29 ft. 6 in. x 12 ft. 3½ in. x 20 ft. 3 in. x 19 ft. ½ in. x 14 ft. 9 in.

Cost to build complete, new materials...	$850	
Depreciation by reason of physical deterioration, 20 per cent.		
Value		$700

STORAGE SHED (Mayer, p. 1354).

1 open frame shed, 33 ft. 5½ in. x 40 ft. x 9 ft. 10 in.

Cost to build complete, new materials...	$900	
Depreciation by reason of physical deterioration, 15 per cent.		
Value		$750

SHED (Description as above).

36 ft. 1 in. x 19 ft. 4 in. x 8 ft. 11 in. high.

Cost to build complete, new materials...	$400	
Depreciation by reason of physical deterioration, 15 per cent.		
Value		$350

STABLE (Mayer, 1354).

2-story brick building, 50 ft. x 32 ft. 1 in. x 26 ft. 11½ in.

Cost to build complete, new materials.	$5,000	
Depreciation by reason of physical deterioration, 15 per cent.		
Value		$4,250

5129 STORAGE SHED (Mayer, 1354).

1-story open frame building, 19 ft. 6 in. x 84 ft. 11 in. x 11 ft. 4½ in.

Cost to build complete, new materials...	$1,000	
Depreciation by reason of physical deterioration, 10 per cent.		
Value		$900

CARRIAGE ROOM, CALLED SHED NO. 1.

(Mayer, p. 1354).

1-story frame building, 19 ft. 10 in. x 19 ft. 10 in. x 10 ft. 4½ in.

Cost to build complete, new materials...	$400	
Depreciation by reason of physical deterioration, 10 per cent.		
Value		$360

PUMP HOUSE (Mayer, 1354).

1-story frame building, 11 ft. x 13 ft. 2 in. x 8 ft. 6 in.

Cost to build complete, new materials...	$175	
Depreciation by reason of physical deterioration, 10 per cent.		
Value		$160

STORAGE SHED (Mayer, p. 1354).

1-story brick building, 20 ft. 9 in. x 46 ft. 8 in. x 12 ft. 10 in.

Cost to build complete, new materials...	$1,300	
Depreciation by reason of physical deterioration, 15 per cent.		
Value		$1,100

ANOTHER STORAGE BUILDING (Mayer, p. 1354).

1-story brick building, 21 ft. x 36 ft. 4 in. x 12 ft. 10 in. high.

Cost to build complete, new materials...	$1,800	
Depreciation by reason of physical deterioration, 20 per cent.		
Value		$1,400

5130 ANOTHER STORAGE SHED (Mayer, p. 1354).

25 ft. 10 in. x 31 ft. 2 in. x 10 ft. high.

Cost to build complete, new materials...	$400	
Depreciation by reason of physical deterioration, 20 per cent.		
Value		$320

FENCES (Mayer, p. 1355).

Distances as set down in testimony and in schedules.

Cost to build complete, new materials...	$5,000	
Depreciation by reason of physical deterioration, 15 per cent.		
Value		$4,200

PAVING AND HOLDING YARD (Mayer, p. 1355).

11,140 sq. ft. of brick laid flat.

Cost to build complete, new material....	$1,400	
Depreciation by reason of physical deterioration, 20 per cent.		
Value		$1,100

BOILER HOUSE (Mayer, 1355).

1-story brick building, 18 ft. 4 in. x 20 ft. x 20 ft. 9 in. long.

Cost to build complete, new materials...	$3,000	
Depreciation by reason of physical deterioration, 15 per cent.		
Value		$2,500

WEIGH OFFICE (Mayer, p. 1355).

1-story and basement brick building, 16 ft. 5 in. x 26 ft. 6 in. x 13 ft. 2 in.

Cost to build complete, new materials...	$2,000	
Depreciation by reason of physical deterioration, 20 per cent.		
Value		$1,600

5131 STORAGE BUILDING (Mayer, p. 1355).

1-story brick building 8 ft. x 7 ft. 11 in. x 7 ft.

Cost to build complete, new materials...	$175	
Depreciation by reason of physical deterioration, 20 per cent.		
Value		$120

ANOTHER VALVE HOUSE (Mayer, p. 1355).

10 ft. x 7 ft. x 12 ft.

Cost to build complete, new materials...	$130	
Depreciation by reason of physical deterioration, 20 per cent.		
Value		$100

ANOTHER BOILER HOUSE (Mayer, p. 1355).

14 ft. x 20 ft. x 15 ft.

Cost to build complete, new materials...	$450	
Depreciation by reason of physical deterioration, 20 per cent.		
Value		$360

PILE FOUNDATIONS NORTH SIDE OF FIFTEENTH STREET.

No specifications given.

Value .....

PORTION OF NEWLY ERECTED BOILER HOUSE IN COURSE OF CONSTRUCTION.

FOUNDATIONS FOR TOWER SCRUBBERS.

(Mayer, p. 1355).

Cost to build complete, new materials...	$7,000	
Depreciation by reason of physical deterioration, 5 per cent.		
Value		$6,600

5132 FOURTEENTH STREET STATION.

Recapitulation.

Value of all buildings complete, together with all foundations contained therein or thereunder, whether the same be for the buildings or for the apparatus....	$324,960	
Add for grading, paving, draining and various improvements.....	10,000	
Value of above.....		$334,960
Value as given by Mr. Mayer (p. 1355).		691,961

CONSOLIDATED GAS COMPANY, FOURTEENTH STREET STATION.

OFFICE BUILDING.

Contents:

(Mayer, p. 1356; Edgerton, p. 4620.)

Cost as per Mayer.....	$1,781.00	
Depreciation, due to physical deterioration, as per Edgerton, 40 per cent..		$1,068.00

STORE ROOM.

Contents:

(Mayer, p. 1358.)

As per Mayer.....	100.00

BOILER ROOM.

(Mayer, p. 1358; Edgerton, pp. 4621 & 4626.)

Rowland Engine.		
Cost, new and complete	$1,800.00	
Depreciation, due to physical deterioration, 25 per cent.		
Value		1,350.00
1 Clark Steam & Fire Regulation Regulator.		
Value as per Mayer		25.00
(Edgerton, p. 4628.)		
Cast Iron Tank.		
Value, with depreciation off		2,500.00

5133 RETORT HOUSE.

(Mayer, p. 1411; Edgerton, p. 4642.)

4 Coal Stacks of 30 Benches each.		
Cost to build, complete	$160,000.00	
Depreciation, by reason of physical deterioration	6,300.00	
Value		153,700.00
1 Stack of 24 Benches.		
Cost to build, complete	$36,500.00	
No depreciation value		$36,500.00

Mr. Edgerton has included in his appraisal the hydraulic mains and iron work, doors, etc., to all the benches, the same as Mr. Mayer, p. 1414.

Stoking Machines.		
(Mayer, p. 1414.)		
Value as per Mayer		15,200.00
		4,180.00
		9,975.00
Drawing Machines.		
Value as per Mayer		24,500.00
		5,130.00
6 Turn-Tables.		
(Mayer, p. 1415.)		
Value as per Mayer		3,780.00
6 Lines of Track.		
(Mayer, p. 1415; Edgerton, 4647.)		
Cost to build, complete	4,830.00	
Depreciation, 10 per cent. per year, at least	307.00	
Value not exceeding		4,423.00

Coke Tracks.

(Mayer, p. 1416; Edgerton, 4648.)

Depreciation, not given.
Value per Mayer..... 1,350.00

5134 2 Coke Dumping Inclines.

(Mayer, p. 1416.)

Cost to build new..... 1,000.00
Depreciation, not given.
Value not exceeding..... 1,000.00

2 7-H. P. Engines, etc.

(Mayer, p. 1416; Edgerton, 4648.)

Cost, new..... 400.00
Depreciation, 20 per cent.
Value 320.00

9 Self-Dumping Coke Machines.

(Mayer, p. 1417.)

Value as per Mayer..... 1,125.00

2 Coke Dumping Inclines.

(Mayer, p. 1416.)

Value as per Mayer..... 22,070.00

Coke Drums, etc.

(Mayer, p. 1417.)

Value as per Mayer..... 380.00

To which Pipe.

(Mayer, p. 1417.)

Value as per Mayer..... 50.00

EXHAUSTER HOUSE.

Contents.

(Mayer, p. 1417; Edgerton, p. 4629.)

No. 9 Root Exhauster.

Cost new, including engine, etc., as per Mayer 1,980.00
Depreciation, 15 per cent.
Value 1,683.00

2 Huntoon Governors.

(Edgerton, p. 4631.)

Cost, new..... 150.00
Depreciation, 15 per cent.
Value 128.00

5135 1 No. 6 Root Exhauster.

Value as per Mayer.....	1,078.00	
Depreciation, 15 per cent.		
Value		917.00

1 Photometer Stand & Bar.

(Edgerton, p. 4632.)

Value		650.00

CONDENSER HOUSE.

(Mayer, p. 1418; Edgerton, p. 4633.)

2 Rectangular Condensers.

Value as per Mayer.....		$29,106.00

LARGE PURIFIER HOUSE.

(Mayer, p. 1419; Edgerton, p. 4635.)

2 Sets.

Value as per Mayer.....		46,432.00

SMALL PURIFIER HOUSE.

(Mayer, p. 1419; Edgerton, p. 4640.)

Cost	13,464.00	
Depreciation, 10 per cent.		
Value		12,119.00

2 Tower Scrubbers.

(Mayer, p. 1421; Edgerton, p. 4649.)

Cost, etc.....	36,195.00	
Depreciation, due to physical deterioration, none.		
Value		36,195.00

Foundation for Scrubbers.

(Mayer, p. 1421; Edgerton, p. 4652.)

Value	6,860.00	
Depreciation, 20 per cent.		
Value		4,582.00

Isbell-Porter Scrubber.

(Mayer, p. 1422; Edgerton, p. 4652.)

Value		5,488.00

5136 2 No. 2 Cameron Pumps.

Value as per Mayer.....		110.00

2 Station Meters.

(Mayer, p. 1422; Edgerton, p. 4640.)

Value as per Mayer.....		1,600.00

1 No. 12 Westinghouse Gas Meter.

(Mayer, p. 1423.)

Value as per Mayer.....		$225.00

King's Pressure Gauge.

Value as per Mayer.....		35.00

Iron Grating Platform around Meter.

Value, as per Mayer.....		315.00

WATER HOUSE.

(Mayer, p. 1423; Edgerton, p. 4621.)

Rowland, 80 H. P. Boiler.

Cost new.....	1,800.00	
Depreciation, 25 per cent.		
Value		1,350.00

Clark's Steam Fire Regulator.

Value as per Mayer.....		25.00

Cast Iron Water Tank.

(Mayer, p. 1424; Edgerton, p. 4626.)

Value		2,500.00

ENGINE ROOM.

(Mayer, p. 1424; Edgerton, p. 4628.)

Fan for Blowers.

Value as per Mayer.....		250.00

Engine, Novelty Iron Works.

Cost	1,500.00	
Depreciation, 25 per cent.		
Value		1,125.00

2 Water Feed Pumps.

Values as per Mayer.....		100.00

5137 Jet Photometer.

Cost new.....	130.00	
Depreciation, 50 per cent.		
Value		65.00

Mackenzie Exhauster.

Cost	924.00	
Depreciation	224.00	
Value		700.00

Sink.

Value as per Mayer	25.00

STORE HOUSE.

Contents.

(Mayer, p. 1426.)

Value as per Mayer	100.00

MACHINE SHOP.

Contents.

(Mayer, p. 1426; Edgerton, p. 4632.)

Cost, new	700.00	
Depreciation, 25 per cent.		
Value		683.00

SMITH SHOP.

Contents.

(Mayer, p. 1426; Edgerton, p. 4632.)

Cost	408.00	
Depreciation, 25 per cent.		
Value		388.00

Grindstone.

Value as per Mayer	356.00

Shed Contents.

(Mayer, p. 1426; Edgerton, p. 4635.)

Cost	1,800.00	
Depreciation, 25 per cent.		
Value		1,350.00

5138 CENTER SEAL HOUSE.

Pressure Gauges.

Value as per Mayer	140.00

Cast Iron Runway.

Value as per Mayer	258.00

BOILER HOUSE.

(Mayer, p. 1427; Edgerton, p. 4641.)

Value	1,050.00

VALVE HOUSE.

Contents.

(Mayer, p. 1427; Edgerton, p. 4642.)

Value 89.00

RETORT HOUSE ANNEX.

Air Condensers.

(Mayer, p. 1428.)

Value as per Mayer..... 15,067.00

COKE PASSAGE.

Contents.

(Mayer, p. 1428.)

Value as per Mayer..... 8,059.00

GAS ENGINE HOUSE.

Contents.

(Mayer, p. 1428.)

Value as per Mayer..... 3,597.00

COAL HOPPER.

Contents.

(Mayer, p. 1428.)

Value as per Mayer..... 3,249.00

5139

COAL SHED.

Contents.

(Mayer, p. 1428).

Value as per Mayer..... 6,064.00

RIGGER HOUSE.

Contents.

(Mayer, p. 1428).

Value as per Mayer..... 565.00

BOILER AND ENGINE HOUSE.

Contents.

(Mayer, p. 1428; Edgerton, p. 4653.)

55-H. P. Vertical Boiler.

Cost	1,100.00	
Depreciation	600.00	
Value		500.00

50-H. P. Engine.

Cost	1,000.00	
Depreciation, 25 per cent.		
Value		750.00

1 25 feet Iron Stack.
Value as per Mayer..... 73.00

1 Feed Water Pump.
Value as per Mayer..... 54.00

BOILER HOUSE AND WELL.

Contents.
(Mayer, p. 1428; Edgerton, p. 4654).

Vertical Boiler.
Cost 250.00
Depreciation, 25 per cent.
Value 187.50

Well House.
(Mayer, p. 1429).
Value as per Mayer..... 1,042.00

5140 *Addendum.*
(Mayer, p. 1429; Edgerton, p. 4654).

Boiler.
Value 360.00

Stack:
Cost 67.50
Depreciation 21.00
Value 46.50

Clock:
Value as per Mayer..... 15.00

Pressure Gauge:
Value as per Mayer..... $800.00

Valve House.
Contents,
(Mayer, p. 1428; Edgerton, p. 4655.)
Value 74.00

Exhauster House:
Contents,
(Mayer, p. 1427; Edgerton, p. 4655.)

New York Safety Engine:
Value 2,550.00

Mackenzie Exhauster:
Value as per Mayer..... 3,050.00

King's Pressure Gauge:		
Value as per Mayer.....		35.00
Photometer		675.00
Valve Stand.		
Value as per Mayer.....		525.00
Root Exhauster:		
Value as per Mayer.....		1,600.00

5141 BOILER HOUSE CONTENTS, *Addenda.*

(Mayer, p. 1429; Edgerton, p. 4657.)

Two 50-h.p. Boilers:		
Cost	3,000.00	
Depreciation	1,000.00	
Value		2,000.00
Two Stacks:		
Value as per Mayer.....		234.00

YARD CONTENTS, *Addenda.*

Ammonia Tanks, etc.:	
Value as per Mayer.....	2,636.00

COKE OFFICE CONTENTS, *Addenda.*

(Mayer, p. 1430.)

Value as per Mayer.....	185.00

BOILER HOUSE CONTENTS, *Addenda.*

(Mayer, p. 1430.)

One 50-h.p. Engine:		
Cost	1,700.00	
Depreciation 60 per cent.		
Value		1,000.00

CLAY MILL & STORAGE, *Addenda.*

Contents:

(Mayer, p. 1430.)

Value as per Mayer.....	460.00

STABLE AND YARD, *Addenda.*

(Mayer, p. 1430.)

Value as per Mayer.....	455.00

PUMP HOUSE, *Addenda.*

Contents:

(Mayer, p. 1430.)

Value as per Mayer..... 235.00

5142 STORAGE SHED, *Addenda.*

Contents:

(Mayer, p. 1430.)

Value as per Mayer..... 415.00

WEIGH OFFICE, *Addenda.*

Contents:

(Mayer, p. 1430.)

Value as per Mayer..... 395.00

CONSOLIDATED GAS COMPANY—FOURTEENTH STREET PLANT.

Recapitulation.

Value of all apparatus and contents of plant as above.. 498,806.00
Mr. Mayer (p. 1358) gives total value of the apparatus and contents of the building mentioned above as.... $578,940.00

CONSOLIDATED GAS COMPANY—FOURTEENTH STREET STATION.

Connections to the Appliances in the Plant.
(Mayer, pp. 1358 and 1359.)

Cast iron pipe, diameter from 2 in. to 30 in., 1,079.58 tons, 22,523 feet.
Cost new
Depreciation
Value

Wrought iron connections, diameters 1 in. to 4 in., 7,425 feet.
Cost new
Depreciation
Value

Valves—6 1-in., 12 1½-in., 7 ¾-in., 10 1¼-in., 4 2-in., 22 4-in., 5 6-in., 3 10-in., 17 12-in., 4 16-in., 14 24-in.
Three way valves—48 20-in., 67 30-in.

5143 RECAPITULATION.

Cost of all of the above pipes, valves, etc.
Depreciation,
Value,
Value of all of the above yard connections and connections to appliances..... $25,500.00
Mr. Mayer (p. 1359) gives a value of all of above connections as $146,895.00

CONSOLIDATED GAS COMPANY.

GAS HOLDERS, INCLUDING TANKS.

Fourteenth Street Station.

(Mayer, p-. 1359 and 1591.)

Six holders, 345,500 cu. ft. capacity		
(Mayer, 1591 and 1359.) Description as given		
Cost to build new	146,600	
Depreciation, 30 per cent.		
Value		$102,600
Two holders, 250,000 cu. ft. capacity each		
(Mayer, 1591 and 1359.) Description as given		
Cost to build new	27,360	
Depreciation, 40 per cent.		
Value		17,100
Brick tanks for above six holders		
(Mayer, 1591 and 1359.) Description as given		
Cost to build new	144,000	
Depreciation, 10 per cent.		
Value		129,600
Two brick tanks		
Specifications as given		
Cost to build new	42,000	
Depreciation, 10 per cent.		
Value		37,800
5144 Holder with steel tank		
(Mayer, 1359, and as set down in schedule.)		
Capacity 3,250,000 cu. ft.		
Cost of holder, diaphragm and steel tank.	$244,000	
Depreciation, 10 per cent.		
Value		
Foundation, concrete ring, etc.		$219,600
Cost	40,000	
Depreciation, ...		
Value		40,000

RECAPITULATION.

Cost of all of the above holders and tanks	546,700.00
Mr. Mayer (p. 1359) gives value of all holders, with tanks, as	$789,604.00

FORTY-SECOND STREET PLANT.

Summary of Values, January, 1907.

Buildings	$432,806.00
Apparatus	370,357.25
Yard Connections	22,950.00
Holders and Tanks	182,688.00
	$1,008,801.25

CONSOLIDATED GAS COMPANY—42D STREET STATION.

BUILDINGS:

	Cost to build.	Depreciation due to physical deteoriation.	Value.
Valve House and Vault in Yard. (Mayer, pp. 1362-1434.) Octagonal brick building, 21 ft. 10 in. x 12 feet high	$4,000	15%	$3,400
Meter House. (Mayer, 1362-1434.) 1-story brick building, 10 ft. 8 in. x 22 ft. 3 in. x 9 ft. 6 in. high	700	10%	650
5145 Purifier House. (Mayer, 1362-1434.) 1-story frame building, 160 ft. x 76 ft. x 20 ft.	34,000	20%	28,000
Purifier House. (Mayer, p. 1434.) Extension to main building	2,000	20%	1,600
Engine and Meter House. (Mayer, 1362-1434.) 2-story brick building, 14 ft. 6 in. x 59 ft. 6 in. x 28 ft.	16,000	10%	14,500
Vaults. (Mayer, p. 1434.) Cost and value included in estimate of vaults all taken together as hereinafter set down.			
Toilet Building. (Mayer, 1362-1434.) 5 ft. 6 in. x 5 ft. 6 in. x 8 ft. 6 in. Value included in Engine and Meter House.			

Retort House. (Mayer, 1362-1434.) 261 ft. 2 in. x 62 ft. 2 in. x 27 ft. high	$109,000	15%	$93,000
Condenser and Scrubber House. (Mayer, 1362-1435.) 2-story brick building, 23 ft. 2 in. x 60 ft. 2 in. x 42 ft. high	19,000	10%	17,000
Retort House, Nos. 2 and 3. (Mayer, 1362-1435.) 100 ft. 4 in. x 118 ft. 3 in. x 24 ft. high Including vault for the same building (south side).	73,000	15%	62,000
5146 Exhauster, Engine and Scrubber House. (Mayer, 1362-1435) 1-story brick building, 28 ft. 6 in. x 100 ft. 4 in. x 24 ft. high	22,000	10%	20,000
Vault. South of No. 1 Retort House and north of Nos. 2 and 3 Retort Houses. (Mayer, 1435)	32,000	15%	27,500
Vault. Between Purifier House and Exhauster, Engine and Scrubber House. (Mayer, 1435)	4,000	10%	3,600
Shed. (Mayer, 1362-1435) 12 ft. x 140 ft. x 12 ft. high	1,000	20%	800
No. 1 Coal Shed. (Mayer, 1363-1435) 1-story brick building, 171 ft. x 90 ft. x 21 ft. 9 in. high	44,000	10%	40,000
Coal Shed with runway overhead. (Mayer, 1363-1435) 2 runways 9 ft. wide, 170 ft. long	300	10%	270

No. 2 Coal Shed.			
(Mayer, 1363-1436)			
89 ft. 9 in. x 171 ft. x 29 ft. High.	55,000	10%	50,000
Carpenter Shop.			
(Mayer, 1363-1436)			
Small room partitioned off in 2d story of No. 2 Coal Shed.....			150
Brick Fence on 11th Avenue.			
(Mayer, 1363-1436)			
195 ft. 10 in.; 9 ft. above grade; 16 in. thick.			
Wrought iron picket fence figured in with brick fence.....	3,700	15%	3,150
5147 Brick Fence on 42nd Street.			
(Mayer, 1363-1436)			
235 ft. 3½ in. long.....	4,500	10%	4,000
Stable and Wagon Shed.			
(Mayer, 1363-1436)			
98 ft. 9 in. x 67 ft. 10½ in. x 18 ft. high, main building.....	17,000	10%	15,500
Eastern Extension to Above Building.			
(Mayer, 1363-1436)			
32 ft. 10½ in. x 30 ft. 4 in. x 10 ft. high	2,600	10%	2,350
Another Extension to Above.			
(Mayer, 1363-1436)			
32 ft. 10½ in. x 26 ft. 6 in. x 14 ft. high	3,050	10%	2,700
Storage Building (for hay, etc.).			
(Mayer, 1363-1436)			
34 ft. x 24 ft. 6 in. x 20 ft.....	3,600	15%	3,100
Harness House.			
(Mayer, 1363-1436)			
16 ft. 6 in. x 16 ft. 6 in. x 18 ft. high	1,400	10%	1,260
Coke Storage Office.			-
(Mayer, 1363-1436)			
15 ft. 4 in. x 7 ft. 4 in. x 13 ft. 6 in.			467
Mayer's value taken.			

Iron Bridge Across Twelfth Avenue. (Mayer, 1363-1436) Span 100 ft. x 12 ft. wide.....	5,000	10%	4,500
Frame Building for Deodorizing Purposes. (Mayer, 1363-1437) 26 ft. x 20 ft. 4 in. x 12 ft. high... Mayer's value taken.	890		801
5148 Cribbing and Earth Filling for 8 Oil Tanks. (Mayer, 1437)	2,438		2,200
Frame Pump House. (Mayer, 1363-1437) 20 ft. x 10 ft. x 10 ft..... Mayer's value taken.	320		288
Timber Ash Dump. (Mayer, 1363-1437) ..... Mayer's value taken.			2,500
Timber Retaining Fence Around Coke Storage. (Mayer, 1363-1437) 700 ft. ..... Mayer's figure taken.	2,800		2,520

FORTY-SECOND STREET STATION.

Recapitulation.

The value of all the buildings, vaults foundations for buildings and apparatus	$407,805	
Add for grading, drains and other improvements	25,000	
Value of all		$432,806
Value stated by Mr. Mayer for above (p. 1364)		598,848

5149 CONSOLIDATED GAS COMPANY.

FORTY-SECOND STREET STATION.

APPARATUS.

VALVE HOUSE.

Contents.

(Mayer, p. 1446)

1 6-ft. governor, etc., cost new.....	$1,500.00	
Depreciation, due to physical deterioration	300.00	
	1,200.00	
Value		$11,200

PURIFIER HOUSE.

Contents.

(Mayer, p. 1448)

8 purifier boxes as described, cost new.	32,750.00	
Depreciation, due to physical deterioration, 5 per cent.		
Deduction, due to unnecessary weight, 10 per cent.		
Value		$28,000.00
4 purifier boxes, etc., dimensions, etc., as given.		
(Mayer, p. 1449)		
Cost, new	16,560.00	
Depreciation, 5 per cent.		
Value		15,742.00
4 small purifiers, etc.		
(Mayer, p. 1449)		
Dimensions, etc., as given, cost, new..	2,955.00	
Depreciation, 5 per cent.		
Value		2,807.25
2 hydraulic floor carriages.		
(Mayer, p. 1450)		
Value, as given by Mayer.....		1,400.00
1 hand power floor carriage.		
(Mayer, p. 1450)		
Value as given by Mayer.....		523.00
1 hand power floor carriage.		
(Mayer, p. 1450)		
Value, as given by Mayer.....		$280.00

5150 ENGINE AND LEADER HOUSE.

(Mayer, p. 1451).

1 Mackenzie exhauster.		
Value, as given by Mayer.....		3,230.00
1 13 ft. 6 in. cast iron station meter.....	5,700	
1 11 ft. 6 in. cast iron station meter.....	4,000	
1 10 ft. 6 in. cast iron station meter.....	3,500	
Cost, new	$13,200	
Depreciation, 15 per cent.		
Value		11,250.00
Station meter (Mayer, p. 1452).		
(Taken from addenda)		
Value		1,500.00

RETORT HOUSE.

(Mayer, p. 1452).

60 benches of sizes, etc., 3 stacks, etc.		
Cost to build, new, complete.....	138,000	
Depreciation, due to physical deterioration, 6½ per cent.		
Value		127,000.00

CONDENSER AND SCRUBBER HOUSE.

(Mayer, p. 1455).

2 scrubbers, as per description.		
Value, as per Mayer.....		2,964.00
1 wrought iron tubular condenser.		
(Mayer, p. 1456)		
Cost, new	$15,000	
Depreciation, 5 per cent.		
Value		14,250.00
1 air condenser (Mayer, p. 1456).		
Cost, etc.	8,600	
Depreciation, etc., 2 per cent.		
Value		8,400.00
Cast iron box, dimensions as given.		
Value		635.00

5151 RETORT HOUSE, Nos. 2 & 3.

(Mayer, p. 1457.)

6 benches of sixes, generative furnaces		
cost, etc.	$13,800	
Depreciation, 6½ per cent.		
Value		$13,000.00

14 benches of sixes, direct fire in one range, cost, etc.	23,800	
Depreciation, etc., 6½ per cent.		
Value		22,300.00
20 benches of sevens, cost, etc	50,000	
Depreciation, etc., 6½ per cent.		
Value		46,800.00

EXHAUSTER ENGINE HOUSE.

(Mayer, p. 1458.)

8 x 8 Greenfield engine, cost, new	770.00	
Depreciation, etc., 15 per cent.		
Value		640.00
2 large Mackenzie exhausters.		
Value, as per Mayer		2,550.00
1 16 x 30 horizontal engine, cost, new	2,000.00	
Depreciation, etc., 15 per cent		1,700.00
8 x 8 Greenfield engine, belting, shafting and pulleys, cost, etc	770.00	
Depreciation, 15 per cent.		
Value		640.00
1 8 x 16 rotary washer.		
Value, as per Mayer		5,145.00
1 10 x 10 Greenfield engine, etc.		
(Mayer, p. 1459.)		
Cost	880.00	
Depreciation, 15 per cent.		
Value		748.00
1 Eclipse washer.		
Value, as per Mayer		4,116.00
5152 1 tubular condenser.		
Value, as per Mayer		3,675.00
2 oil gas scrubbers.		
Value, as per Mayer		1,025.00
1 cast iron oil gas condenser.		
(Mayer, p. 1460.)		
Value, as per Mayer		$1,437.00

RETORT HOUSE, No. 4.

(Mayer, p. 1460.)

4 benches of sixes, cost, etc.....	$10,000.00	
Depreciation, etc., 75 per cent.		
Value		2,500.00

VAULT.

CONTENTS.

(Mayer, p. 1461.)

1 small pump.		
Value, as per Mayer.....		84.00
2 Continental boilers, 16 h. p., complete, with foundations, etc., cost, etc.....	1,700.00	
Depreciation, 30 per cent.		
Value		1,190.00
Breeching and steel stack.		
Value, as per Mayer.....		428.00
1 Continental boiler, 105 h. p., complete, etc., cost	1,800.00	
Depreciation, 30 per cent.		
Value		1,260.00
Breeching and stack for same.		
Value, as per Mayer.....		428.00
2 small boiler feed pumps.		
Value, as per Mayer.....		158.00
1 Knowles air compressor.		
Value as per Mayer		630.00
5153 2 feed water heaters.		
Value as per Mayer.....		540.00
1 8 x 8 Greenfield engine, cost.....	770.00	
Depreciation, 15 per cent.		
Value		700.00
1 vertical drill press.		
Value, as per Mayer.....		$80.00
1 pipe cutter.		
Value, as per Mayer.....		340.00
1 bench lathe.		
Value, as per Mayer.....		40.00
Various small articles.		
(Mayer, p. 1462)		
Cost, etc.	$1,000.00	
Depreciation, etc., 15 per cent.		
Value		850.00

CARPENTER SHOP.

CONTENTS.

(Mayer, p. 1463.)

Value, as per Mayer.....		1,425.00

COKE STORAGE YARD.

CONTENTS.

(Mayer, p. 1463.)

Value, as per Mayer.....		1,323.00
Tank and scales.		
Value, as per Mayer.....		1,187.00
Water Meters.		
(Mayer, p. 1463)		
Value, as per Mayer.....		100.00
Coal Hoisting Apparatus, etc., Machinery and Buildings.		
(Mayer, p. 1463 and schedule)		
Cost, new, as per Mayer.....	55,000.00	
Depreciation, 70 per cent.		
Value		15,000.00

5154 OIL AND TAR STORAGE TANKS.

(Mayer, p. 1464).

2 wrought iron tanks.	
Value, as per Mayer.....	$1,868.00
8 wrought iron tanks.	
Value, as per Mayer.....	5,714.00
1 wrought iron tank.	
Value, as per Mayer.....	3,302.00
1 wooden tank.	
Value, as per Mayer.....	540.00
Piles under wooden tank.	
Value, as per Mayer.....	650.00
Wrought iron tanks.	
Value, as per Mayer.....	415.00

1 wooden well.
Value, as per Mayer..... 150.00
Value, as per Mayer..... 415.00

Piles under wooden tanks.
Value, as per Mayer..... 519.00

Lead lining to tanks (Mayer, p. 1463).
Value 4,364.00

DEODORIZER HOUSE.

(Mayer, p. 1466).

Cast iron purifier.
Cost, new, per Mayer..... $4,760.00
Depreciation, 75 per cent.
Value 1,200.00

RECAPITULATION.

Value of all apparatus and contents as above at 42d Street station $370,357.25
Mr. Mayer gives as his value of all of above apparatus and contents (p. 1364)..... 551,743.00

(Mayer, p. 1364).

5155 CONNECTIONS TO THE APPLIANCES IN THE PLANT.

Cast iron pipes and connections from 3 in. to 13 in. in diameter, 18,129 feet.
Cost, new .....
Depreciation
Value .....

Steel rivet pipes from 20 in. to 24 in. in diameter, 540 feet.
Cost, new .....
Depreciation
Value .....

Wrought iron pipes, 3 in. and less, 2,800 feet.
Cost, new .....
Depreciation
Value .....

Valves.
3 30 in., 34 24 in., 11 20 in., 15 16 in., 25 12 in., 3 10 in., 10 8 in.....
Cost, new .....
Depreciation
Value .....

RECAPITULATION.

Value of all of the above yard connections and connections to appliances	$22,950.00
Mr. Mayer (p. 1364) gives a total value of all of above connections of	134,157.00

HOLDERS AND BRICK TANK.

4 holders, 250,000 cu. ft. capacity.
(Mayer, 1591 & 1364)
Description as given.

Cost	$73,900	
Depreciation, 10 per cent.		
Value		$66,500

5156 4 brick tanks for above holders.
(Mayer, 1591 & 1364)
Description as given.

Cost	120,000	
Depreciation, 5 per cent.		
Value		114,000

1 steel tank holder.
(Mayer, p. 1591-2)

Value, as per Mayer	2,188

RECAPITULATION.

Value of all of the above tanks and holders	$182,688
Mr. Mayer (p. 1592 and 1364) gives value for above holders and tanks as	225,778

FORTY-FOURTH STREET PLANT.

Summary of Values, January, 1907.

Buildings	$261,743.00
Apparatus	357,485.00
Yard Connections	51,850.00
Holders and Tanks	439,800.00
	$1,110,878.00

FORTY-FOURTH STREET STATION BUILDINGS.

GOVERNOR HOUSE (Mayer, pgs. 1366 and 1516).

Octagonal building, 11 ft. 2½ in. between parallel sides; 16 ft. high.

Cost to build complete with new material	$3,300	
Depreciation, add to physical deterioration, 10 per cent.		
Value		$3,000

VALVE HOUSE (Mayer, pgs. 1366 and 1516).

Octagonal building, 9 ft. 7 in. between parallel sides, 18 ft. 6 in. high.

Cost, etc.	$2,875	
Depreciation, 10 per cent.		
Value		$2,600

5157 CARPENTER SHOP (Mayer, pgs. 1366 and 1516).

Two-story brick building, 26 ft. by 35 ft. 6 in. by 30 ft.

Cost, etc.	$3,350	
Depreciation, 10 per cent.		
Value		$3,000

LUMBER SHED (Mayer, pgs. 1366 and 1516).

25 ft. by 28 ft. by 22 ft.

Cost	$415	
Depreciation, 10 per cent.		
Value		$370

PURIFYING HOUSE (Mayer, pgs. 1366 and 1516).

One-story brick building, 155 ft. 9 in. by 65 ft. 8 in. by 30 ft.

Cost, etc.	$28,000	
Depreciation, 10 per cent.		
Value		$25,000

METER HOUSE (Mayer, pgs. 1366 and 1516).

Two-story brick building, 43 ft. 9 in. by 45 ft. 1 in. by 37 ft. 6 in.

Cost, etc.	$14,000	
Depreciation, 15 per cent.		
Value		$12,000

CONDENSER & SCRUBBER HOUSE.

(Mayer, pgs. 1366 and 1516.)

44 ft. 10 in. by 49 ft. 8 in. by 32 ft. 10 in.

Cost, etc.	$14,700	
Depreciation, 5 per cent.		
Value		$14,000

ENGINE, EXHAUST & BLOWER HOUSE.

(Mayer, pgs. 1366 and 1516.)

Cost, etc.	$27,250	
Depreciation, 5 per cent.		
Value		$26,000

5158 GENERATOR & BOILER HOUSE.

(Mayer, pgs. 1366 and 1516.)

Two-story brick building, 139 ft. 9 in. by 65 ft. 10 in. by 27 ft.

Cost, etc..... $44,830
Depreciation, 15 per cent.
Value $38,000

RETORT HOUSE (Mayer, pgs. 1366 and 1516).

One-story brick building, 207 ft. by 65 ft. by 21 ft.

Cost, etc..... $32,000
Depreciation, 15 per cent.
Value $27,500

COAL HOISTS (Mayer, pgs. 1366 and 1516).

Wooden frame structure.

Value $228
(Mayer figure taken.)

CONCRETE MIXER & ENGINE BUILDING.

(Mayer, pgs. 1366 and 1516.)

25 ft. by 16 ft. by 9 ft.

Value 452
(Mayer's Figure taken.)

STORAGE TANK BUILDING.

(Mayer, pgs. 1366 and 1516.)

12 ft. by 12 ft. by 12 ft.

Value $342
(Mayer's Figure taken.)

OIL PUMP HOUSE (Mayer, pgs. 1366 and 1517).

28 ft. 9 in. by 18 ft. 9 in. by 27 ft. 3 in.

Cost, etc..... $3,300
Depreciation, 15 per cent.
Value $2,800

5159 TAR SEPARATORS (Mayer, pgs. 1316 and 1517).

Foundations, etc.

Cost, etc.
Value $1,775
(Mayer's Figure taken).

COAL SHED (Mayer, pgs. 1316 and 1517).

Frame structure, 118 ft. 9 in. by 69 ft. 9 in. by 32 ft. high.

Cost, etc.	12,000	
Depreciation, 25 per cent.		
Value		$9,000

SCALE BUILDING (Mayer, pgs. 1367 and 1517).

Cost, etc.	$200	
Depreciation, 10 per cent.		
Value		$180

WATER TOWER (Mayer, pgs. 1367 and 1517).

Two-story circular brick building, 20 ft. diameter by 25 ft. high.

Cost, etc.	$2,260	
Depreciation, 10 per cent.		
Value		$2,000

EXHAUSTER HOUSE (Mayer, pgs. 1367 and 1517).

Two-story brick building, 25 ft. by 27 ft. by 20 ft.

Cost, etc.	$4,000	
Depreciation, 15 per cent.		
Value		$3,400

LIME SHED (Mayer, pgs. 1367 and 1517).

104 ft. by 75 ft. by 14 ft.

Cost, etc.	$2,000	
Depreciation, 10 per cent.		
Value		$1,800

5160 PURIFYING AND METER HOUSE.

(Mayer, pgs. 1367 and 1517.)

Brick building, 132 ft. 3 in. by 65 ft. by 25 ft. 6 in.

Cost, etc.	$35,600	
Depreciation, 15 per cent.		
Value		$30,000

STABLE (Mayer, pgs. 1367 and 1517).

60 ft. by 45 ft. by 20 ft.

Cost, etc.	$15,000	
Depreciation, 10 per cent.		
Value		$13,500

TOOL SHOP (Mayer, pgs. 1317 and 1517).

One-story brick building, 37 ft. 7 in. by 26 ft. by 16 ft.

Cost, etc.	$1,500	
Depreciation, 10 per cent.		
Value		$1,350

STORE HOUSE (Mayer, pgs. 1367 and 1517).

Brick building, 24 ft. by 24 ft. 3 in. by 16 ft. 3 in.

Cost, etc.	$1,200	
Depreciation, 25 per cent.		
Value		$800

SMALL BRICK BUILDING.

(Mayer, pgs. 1367 and 1517.)

10 ft. by 10 ft. by 20 ft.

Cost, etc.	$400	
Depreciation, 15 per cent.		
Value		$340

FRAME SHED (Mayer, pgs. 1367 and 1517).

10 ft. by 8 ft. by 8 ft.

Cost, etc.	$250	
Depreciation, 5 per cent.		
Value		$235

5161 BLACKSMITH SHOP (Mayer, pgs. 1367 and 1517).

Frame building, 15 ft. by 35 ft. by 16 ft.

Cost, etc.	$500	
Depreciation, 60 per cent.		
Value		$200

PIPE HOUSE (Mayer, pgs. 1367 and 1517).

Value (as per Mayer)	$55

PUMP HOUSE (Mayer, pgs. 1367 and 1517).

Value (as per Mayer)	$44

BRICK WALLS AROUND WORKS.

(Mayer, pgs. 1367 and 1517.)

(Includes all improvements.)

Value	$35,000

ALL BRICK WALLS & TIMBER FENCES.

(Mayer, pg. 1517.)

Value (as per Mayer)..... $2,860

SHED OVER OIL TANKS.

(Mayer, pgs. 1367 and 1517.)

Value (as per Mayer)..... $188

FOUNDATIONS FOR SALT WATER CONDENSER.

(Mayer, pgs. 1367 and 1517.)

Value (as per Mayer)..... $489

FOUNDATION FOR HOT SCRUBBER.

(Mayer, pgs. 1367 and 1517.)

Value (as per Mayer)..... $353

FOUNDATIONS FOR AIR CONDENSER.

(Mayer, pgs. 1367 and 1517.)

Value (as per Mayer)..... $752

5162 BRICK DRAINAGE TANK.

(Mayer, pgs. 1367 and 1517.)

Value (as per Mayer)..... $2,032

DRAUGHT FAN ROOM.

(Mayer, pgs. 1367 and 1517.)

Value (as per Mayer)..... $98

RECAPITULATION.

Value of all buildings, including all foundations for buildings and apparatus $261,743

(Mr. Mayer has given as to value of above, pp. 1368 & 1518, $407,767.)

APPARATUS.

(Mayer, p. 1368.)

Value, as per Mayer..... $1,520.00

GOVERNOR HOUSE.

(Mayer, p. 1520.)

Value, as per Mayer.....		1,572.00

POWER HOUSE.

(Mayer, p. 1520.)

Contents.

Value, as per Mayer.....		48.00

CARPENTER SHOP.

Contents.

Value, as per Mayer.....		95.00

PURIFIER HOUSE.

(Mayer, p. 1520.)

8 purifier boxes, as described.

Cost	28,000	
Depreciation, due to physical deterioration, 10 per cent.		
Value		25,000

5163 METER HOUSE.

(Mayer, p. 1520).

Contents.

2 14 ft. x 14 ft. station meters, as described.		
Cost, etc.	$10,000	
Depreciation, etc., 15 per cent.		
Value		8,500
1 16 in. Wiley proportional meter and 1 small meter as described.		
Cost	6,000	
Depreciation, 15 per cent.		
Value		5,000

Office Furniture.

(Mayer, p. 1521)

Value, as per Mayer.....		760.00

1 bar photometer.

(Mayer, p. 1521)

Value, as per Mayer.....		650.00

CONDENSER AND SCRUBBER HOUSE.

CONTENTS.

(Mayer, p. 1521).

2 scrubbers, as described.		
Cost		
Depreciation, etc.		
Value		$2,400.00
2 rectangular condensers as described..	2,400	
Cost, as per Mayer.....	31,752.00	
Depreciation, 15 per cent.		
Value		26,000.00
1 Westinghouse gas meter.		
(Mayer, p. 1523)		
Value, as per Mayer.....		350.00
5164 1 Pelouze & Andouin condenser.		
Cost new	1,260	
Depreciation, etc., 15 per cent.		
Value		1,071.00
Value, as per Mayer.....	$1,197	

ENGINE, EXHAUSTER & BLOWER HOUSE.

2 vertical engines, made by Rowland, as described.		
Cost, new	$1,320	
Depreciation, etc., 10 per cent.		
Value		$1,188
2 Payne engines, as described.		
(Mayer, 1524)		
Cost, new	$2,750	
Depreciation, etc., 10 per cent.		
Value		2,475
1 horizontal Buck-eye engine as described.		
(Mayer, 1524)		
Cost, new	$1,800	
Depreciation, 10 per cent.		
Value		1,620
2 McKenzize exhausters.		
Cost, per Mayer.....	3,410	
Value, as per Mayer.....		3,410
3 No. 10 Sturtevant blowers, as described.		
Value, as per Mayer.....		1,800

1 steel blast flue.
Value, as per Mayer..... 290

1 comp. duplex pump, as described.
Value, as per Mayer..... 670

1 Davidson pump, as described.
(Mayer, 1525)
Value, as per Mayer..... 772

5165 EXHAUSTER HOUSE AND BLOWER HOUSE CONTENTS.

(Mayer, 1525).

Knolls duplex pump.
Value, as per Mayer..... $656

1 Spencer automatic damper.
Value, as per Mayer..... 250
Value 75

1 McClellan oil purifier tank.
Value, as per Mayer..... 53

1 Gild & Garrison pump.
Value, as per Mayer..... 210

1 10 x 16 Blake pump.
Value, as per Mayer..... 650

Counter shafting, pulleys, etc.
Value, as per Mayer..... 135

GENERATOR AND BOILER HOUSE CONTENTS.

(Mayer, 1525).

2 8 ft. 6 in. U. G. I. Co. sets.
Cost, new $20,000
Depreciation, 10 per cent.
Value $18,000

4 12 ft. U. G. I. Co. sets.
Cost, new 52,000
Depreciation, 10 per cent.
Value 47,000

4 Hazleton porcupine boilers, 200 h. p.
(Mayer, 1526)
Cost, new 10,000
Depreciation, 15 per cent.
Value 8,500

2 hydraulic lifts.
(Mayer, 1526)
Value as per Mayer.....
Cost, new 2,000
Depreciation, 10 per cent.
Value 1,800

5166 Cast iron charging floor.
(Mayer, 1527)
Value, as per Mayer..... 112.34
Not included in this schedule, as it appears as part of building.

Retort.
(Mayer, 1526)
10 benches of sixes as described.
House standing not down.
Cost, new 21,000
Depreciation, 15 per cent.
Value 18,000

2 Altman & Taylor boilers.
(Mayer, 1528)
Cost, new 5,000
Depreciation, 5 per cent.
Value 4,750

2 horizontal porcupine boilers.
(Mayer, 1528)
Cost, new 5,000
Depreciation, 10 per cent.
Value 4,500

1 No. 10 Sturtevant Blower.
Value as per Mayer..... $600

1 Armington & Sims Engine.
Cost, new 1,200
Depreciation, 10 per cent.
Value $1,080

1 No. 4 Garrison Pump.
Value as per Mayer..... $190

1 Berryman Heater (Mayer, 1529).
Value as per Mayer..... $195

Air and Salt Water Condenser (Mayer, 1529).
Value as per Mayer..... $10,290

1 Salt Water Condenser (Mayer, 1529).
Value as per Mayer..... $8,036

5167 Coal Hoisting Apparatus.
(Mayer, 1529.)
Value as per Mayer..... $7,876

WATER TOWER CONTENTS:

(Mayer, 1530.)

1 Blake Pump.
Value as per Mayer..... $1,740

1 Worthington Pump, etc.
Value as per Mayer..... $423

1 Tank.
Value as per Mayer..... $1,200

EXHAUSTER AND BOILER HOUSE.

1 24-in. McKenzie Exhauster.
Cost as per Mayer..... $1,705
Value $1,615

1 8 x 8 Greenfield Engine.
Cost, new $700
Depreciation, 15 per cent.
Value $585

2 Vertical Boilers (Mayer, p. 1530).
Value as per Mayer..... $399

LIME AND OXIDE SHED CONTENTS.

(Mayer, 1530.)

1 Knoll's Compressor.
Value as per Mayer..... $2,750

PURIFIER SHED.

(Mayer, 1530.)

4 Cast Iron Purifier Boxes as Described.
Cost, new $13,000
Depreciation, 10 per cent.
Value $11,700

5168 2 Hydraulic Carriages.
Cost new $2,000
Depreciation, 10 per cent.
Value $1,800

METER HOUSE CONTENTS.

(Mayer, 1531.)

1 14-ft. Diameter Meter, Continental Iron Works.		
Cost new	$5,000	
Depreciation, 15 per cent.		
Value		$4,250
2 Sturtevant Blowers.		
Value as per Mayer		$360
3 Dismantled Beam Engines.		
Value as per Mayer		$863
Cost new as per Mayer	$1,150	
Depreciation, 90 per cent.		
Value		$115

STABLE CONTENTS.

(Mayer, 1531.)

23 Stalls.	
Value as per Mayer	$437

TOOL SHOP CONTENTS.

Value as per Mayer	$1,463

STORE HOUSE AND ANNEX CONTENTS.

(Mayer, 1531.)

Value as per Mayer	$420

OIL TANKS UNDER GROUND.

(Mayer, 1531.)

Value as per Mayer	$14,232

5169

OIL TANKS OVER GROUND.

(Mayer, 1532.)

Value as per Mayer	$846

FILTER PRESS HOUSE CONTENTS.

(Mayer, 1532.)

Value as per Mayer	$850
Tar and Oil System.	
Value as per Mayer	$1,662

PUMP SHED CONTENTS.

(Mayer, 1532.)

Value as per Mayer..... $358

BLACKSMITH SHOP.

(Mayer, 1532.)

Value as per Mayer..... $287

POWER HOUSE CONTENTS.

(Mayer, 1532.)

Worthington Pump.
Value as per Mayer..... $468

Cameron Pump.
Value as per Mayer..... $360

OIL TANKS CONSTRUCTED OF STEEL SET IN CIRCULAR PIT.

(Mayer, 1532.)

Value as per Mayer..... $9,263

5170 CONCRETE MIXER HOUSE CONTENTS.

(Mayer, 1532.)

1 Sturtevant Blower.
Value as per Mayer..... $157

1 Concrete Mixer.
Value as per Mayer..... $380

3 Storage Tar Tanks.
(Mayer, p. 1533.)
Value as per Mayer..... $1,756

OIL PUMP HOUSE.

CONTENTS.

(Mayer, p. 1533.)

2 Steel Tanks.
Value as per Mayer..... $1,218

2 Davidson Pumps.
Value as per Mayer..... $275

2 Cameron Pumps.
Value as per Mayer..... $314

1 Worthington Pump.
Value as per Mayer..... $197

1 Cameron Pump.
Value as per Mayer..... $314

1 Wothington Duplex.
Value as per Mayer..... $128

1 Cameron No. 9.
Value as per Mayer..... $325

Tar Separator System.
(Mayer, p. 1534.)
Value as per Mayer..... $2,250

1 10-ton Scale.
Value as per Mayer..... $300

Force Draft Plant.
Value as per Mayer..... $950

5171 RECAPITULATION.

Value of all apparatus and contents of plant as above. $357,485.00
Mr. Mayer (pp. 1368 and 1534) gives value of above as $409,175.00

CONSOLIDATED GAS COMPANY.

FORTY-FOURTH STREET STATION.

(Mayer, p. 1368.)

CONNECTIONS TO THE APPLIANCES IN THE PLANT.

Cast iron pipe—4 in. to 36 in. diameter, 9117 feet.
Cost, new .....
Depreciation,
Value .....

Steel riveted pipe—16 in. to 30 in. diameter, 600 feet.
Cost, new .....
Depreciation,
Value .....

Wrought iron pipe—1½ in. to 12 in. diameter, 8,702 feet.
Cost, new .....
Depreciation,
Value .....

Valves—68 ½ in., 37 2 in., 36 2½ in., 45 3 in., 58 4 in., 10 5 in., 34 6 in., 7 7 in., 18 8 in., 4 12 in., 9 16 in., 12 20 in., 77 24 in., 1 30 in.

RECAPITULATION.

Value of all the above yard connections and connections to appliances	$51,850.00
Mr. Mayer (p. 1369) gives a value for all of above connections of	99,910.00

5172 HOLDERS AND BRICK TANKS.

4 holders.		
375,000 cu. ft. capacity each		
(Mayer, 1592 & 1369)		
Description as given.		
Cost	$75,000	
Depreciation, 10 per cent.		
Value		$67,500
1 holder.		
2,000,000 cu. ft. capacity		
(Mayer, 1592 & 1369)		
Description as given.		
Cost	84,000	
Depreciation, 10 per cent.		
Value		75,600
2 holders.		
125,000 cu. ft. capacity		
(Mayer, 1592 & 1369)		
Cost	25,250	
Depreciation, 10 per cent.		
Value		22,700
4 brick tanks for first four of above holders		
(Mayer, 1592 & 1369)		
Description as given.		
Cost	124,000	
Depreciation,		
Value		124,000
1 brick tank for 2,000,000 ft. capacity holder		
(Mayer, 1592 & 1357)		
Description as given.		
Cost	100,000	
Depreciation,		
Value		100,000

5173 2 brick tanks for 125,000 cu. ft. holders

(Mayer, 1592 & 1369)

Description as given.

Cost	50,000.00	
Depreciation,		
Value		50,000

RECAPITULATION.

Value of all of the above holders and tanks	$439,800.00
Mayer (p. 1592 & 1369) gives a total cost of all holders, with their accompanying tanks, etc., as	814,929.00

5174 TWENTY-FIRST STREET PLANT.

Summary of Values, January, 1907.

Buildings	$646,708.00
Apparatus	913,284.00
Yard Connections	146,400.00
Holders & Tanks	470,100.00
	$2,176,492.00

BUILDINGS.

STOVE SHOP.

(Mayer, pp. 1370 and 1475.)

1-story building, 212 ft. 6 in. x 50 ft. x 20 ft.

Cost, etc.	$27,000	
Depreciation, 20 per cent.		
Value		$21,600

METER SHOP.

(Mayer, pp. 1370 and 1475).

1-story brick building, 212 fe-t 6 in. x 50 ft. x 20 ft.

Cost, etc.	$31,500	
Depreciation, 10 per cent.		
Value		$28,300

STOVE REPAIR SHOP.

(Mayer, pp. 1370 and 1476).

1-story and part 2-story building, dimensions as given.

Cost, etc.	$15,500	
Depreciation, 20 per cent.		
Value		$12,000

STOVE CLEANING ROOM.

(Mayer, pp. 1370 and 1476).

51 ft. x 14 ft. x 20 ft.

Cost, etc.	$750	
Depreciation, 10 per cent.		
Value		$675

5175 DIAPHRAGM ROOM.

(Mayer, pp. 1370 and 1476).

Value included in Stove Repair Shop.

PREPAYMENT METER REPAIR SHOP.

(Mayer, pp. 1370 and 1476).

Costs, etc.	$5,500	
Depreciation, 15 per cent.		
Value		$4,750

STORAGE ROOM.

(Mayer, pp. 1370 and 1476).

20 ft. x 51 ft.

Cost, etc.	$1,200	
Depreciation, 15 per cent.		
Value		$1,000

WASH ROOM.

(Mayer, pp. 1370 and 1476).

12 ft. x 51 ft.

Cost, etc.	$800	
Depreciation, 10 per cent.		
Value		$720

BOILER HOUSE.

(Mayer, pp. 1370 & 1476).

Brick building, 40 ft. x 58 ft. x 20 ft.

Cost, etc.	$7,000	
Depreciation, 20 per cent.		
Value		$6,300

OIL STORAGE HOUSE.

(Mayer, pp. 1371 & 1476).

12 ft. x 14 ft. x 7 ft.

Cost, etc.	$200	
Depreciation, 5 per cent.		
Value		$190

5176 LEAD HOUSE.

(Mayer, pp. 1371 & 1476).

22 ft. x 17 ft. x 10 ft.

Cost, etc.	$460	
Depreciation, 5 per cent.		
Value		$440

FIRE HOSE HOUSE.

(Mayer, pp. 1376 & 1476).

5 ft. x 5 ft. x 6 ft.

Cost, etc.	$40	
Depreciation, 5 per cent.		
Value		$38

VALVE HOUSE.

(Mayer, pp. 1371 & 1476).

21 ft. 9 in. x 28 ft. x 11 ft.

Cost, etc.	$2,300	
Depreciation, 15 per cent.		
Value		$2,000

OCTAGONAL VALVE HOUSE.

(Mayer, pp. 1371 & 1476).

Brick building, 10 ft. 3 in. between parallel sides, 25 ft. high.

Cost, etc.	$2,600	
Depreciation, 10 per cent.		
Value		$2,350

ANOTHER VALVE HOUSE.

(Mayer, pp. 1371 & 1476).

Brick building, 15 ft. 6 in. x 10 ft. x 12 ft.

Cost, etc.	$640	
Depreciation, 10 per cent.		
Value		$575

5177 TIN SMITH SHOP.

(Mayer, pp. 1371 & 1477).

26 ft. x 28 ft. x 25 ft.

Cost, etc.	$2,900	
Depreciation, 15 per cent.		
Value		$2,500

STORE ROOM.

(Mayer, pp. 1371 & 1477).

Cost, etc.	$300	
Depreciation, 15 per cent.		
Value		$255

PAINT SHOP.

(Mayer, pp. 1371 & 1477).

Cost, etc.	$300	
Depreciation, 15 per cent.		
Value		$255

OFFICE BUILDING.

(Mayer, pp. 1371 & 1477).

47 ft. 4 in. x 51 ft. x 26 ft. 6 in. high.

Cost, etc.	$14,000	
Depreciation, 5 per cent.		
Value		$13,300

ENGINE ROOM, MACHINE SHOP & GANGWAY.

(Mayer, pp. 1371 & 1477).

150 ft. x 74 ft. x 46 ft. x 44 ft. x 25 ft. high.

Cost, etc.	$39,300	
Depreciation, 10 per cent.		
Value		$35,000

5178 OLD RETORT HOUSE.

(Mayer, pp. 1371 & 1477).

306 ft. x 54 ft. x 23 ft.

Cost, etc.	$35,000	
Depreciation, 15 per cent.		
Value		$30,000

FOUNDATIONS FOR BENCHES IN OLD RETORT HOUSE.

(Mayer, p. 1477.)

Value included in appraisal of Old Retort House.

NEW SHOP BUILDING.

(Mayer, pp. 1371 & 1477).

47 ft. x 57 ft. x 15 ft.

Cost, etc.	$5,600	
Depreciation, 3 per cent.		
Value		$4,850

OLD CARBURETTER HOUSE.

(Mayer, pp. 1371 & 1477).

38 ft. square.

Cost, etc.	$6,000	
Depreciation, 20 per cent.		
Value		$4,800

GENERATOR HOUSE.

(Mayer, pp. 1371 & 1477).

204 ft. x 50 ft. x 30 ft.

Cost, etc.	$63,500	
Depreciation, 15 per cent.		
Value		$54,000

5179 BUILDING OVER BOILER AND COKE STORAGE.

(Mayer, pp. 1371 & 1478.)

307 ft. 3 in. x 68 ft. x 25 ft. high.

Cost etc.	$40,000	
Depreciation, 15 per cent.		
Value		$34,000

GENERATOR HOUSE (22d Street).

(Mayer, pp. 1371 & 1478.)

204 ft. x 74 ft. x 30 ft.

Cost etc.	$65,500	
Depreciation, 15 per cent.		
Value		$55,000

RETORT HOUSE (22d Street).

(Mayer, pp. 1371 & 1478.)

307 ft. 3 in. x 74 ft. x 25 ft.

Cost, etc.	$42,000	
Depreciation, 15 per cent.		
Value		$36,000

PUMP HOUSE.

(Mayer, pp. 1371 & 1478.)

Two-story brick building, 20 ft. x 38 ft. x 29 ft. 4 in.

Cost, etc.	$4,500	
Depreciation, 10 per cent.		
Value		$4,000

NO. 1 SHED.

(Mayer, pp. 1371 & 1478.)

185 ft. 6 in. x 66 ft. x 28 ft. 6 in.

Cost, etc.	$30,000	
Depreciation, 50 per cent.		
Value		$15,000

5180

NO. 2 SHED.

(Mayer, pp. 1371 & 1478.)

Cost, etc.	$30,000	
Depreciation, 50 per cent.		
Value		$15,000

NO. 3 SHED.

(Mayer, pp. 1371 & 1478.)

Cost, etc.	$30,000	
Depreciation, 50 per cent.		
Value		$15,000

NO. 4 SHED.

(Mayer, pp. 1371 & 1478.)

Cost, etc.	$30,000	
Depreciation, 50 per cent.		
Value		$15,000

NO. 5 SHED.

(Mayer, pp. 1371 & 1478.)

Cost, etc.	$30,000	
Depreciation, 50 per cent.		
Value		$15,000

PURIFIER HOUSE.

(Mayer, pp. 1371 & 1478.)

185 ft. 6 in. x 66 ft. x 44 ft. high.

Cost, etc.	$38,000	
Depreciation, 20 per cent.		
Value		$30,000

CONDENSER AND SCRUBBER HOUSE.

(Mayer, pp. 1372 & 1478.)

185 ft. 6 in. x 66 ft. x 44 in. high.

Cost, etc.	$40,000	
Depreciation, 20 per cent.		
Value		$32,000

5181 PURIFIER HOUSE.

(Mayer, pp. 1372 & 1478.)

185 ft. 6 in. x 66 ft. x 44 ft. high.

Cost, etc.	$38,000	
Depreciation, 25 per cent.		
Value		$30,000

METER HOUSE.

(Mayer, pp. 1372 & 1478.)

92 ft. x 72 ft. x 28 ft. high.

Cost, etc.	$17,000	
Depreciation, 15 per cent.		
Value		$15,000

SHAVING SCRUBBER HOUSE.

(Mayer, pp. 1372 & 1478.)

185 ft. 6 in. x 66 ft. x 35 ft.

Cost, etc.	$22,000	
Depreciation, 30 per cent.		
Value		$15,000

EXHAUSTER HOUSE.

(Mayer, pp. 1372 & 1478.)

Two-story brick, 64 ft. 4 in. x 49 ft. 10 in. x 41 ft. 3½ in. high.

Cost, etc.	$20,000	
Depreciation, 10 per cent.		
Value		$18,000

COAL SHED.

(Mayer, pp. 1372 & 1479.)

150 ft. x 68 ft. x 34 ft. high.

Cost, etc.	$35,500	
Depreciation, 25 per cent.		
Value		$26,000

5182 WATER TOWER.

(Mayer, pp. 1372 & 1479.)

Circular brick building, 20 ft. diameter, 25 ft. high.

Cost, etc.	$4,500	
Depreciation, 50 per cent.		
Value		$2,250

Excavating, curbing and leveling for 12 Oil Tanks.
(Mayer, pp. 1372 & 1479.)
Value as per Mayer's appraisal..... $8,118

Excavation for 10 Separating Tanks.
(Mayer, pp. 1372 & 1479.)
Value as per Mayer's appraisal..... $8,462

One foundation for additional Oil Tank.
(Mayer, pp. 1372 & 1479.)
Value as per Mayer's appraisal..... 5,000

One foundation for Steel Tank.
(Mayer, pp. 1372 & 1479.)
Value as per Mayer's appraisal..... 980

TWENTY-FIRST STREET STATION.

RECAPITULATION.

Value of all buildings with new material complete, including foundations for buildings and all apparatus.....	$621,708	
Add for sewers, drainage, flagging grass plots and other miscellaneous improvements, including surfacing, etc.	25,000	
Value of all the above.....		$646,708
Value given by Mr. Mayer for above, page 1372.....		$1,579,695

TWENTY-FIRST STREET STATION.

APPARATUS.

(Mayer, pp. 1372, 1485.)

Value of engines and all apparatus as described (pp. 1485, 1486) down to contents of boiler houses.		
Cost, as per Mayer.....	$31,900.00	
Depreciation, 15 per cent.		
Value		$27,000.00

WATER HOUSE.

Contents.

(Mayer, p. 1487.)

2 60 h. p. boilers.		
Cost, as per Mayer.....	2,710.00	
Depreciation, 20 per cent.		
Value		2,200.00
1 3 in. Worthington water meter.		
Value, as per Mayer.....		50.00
2 steel stacks.		
Value, as per Mayer.....		96.00
Fire brick blocks.		
Value, as per Mayer.....		780.00

OIL STORAGE HOUSE.

Contents.

(Mayer, p. 1487.)

Value, as per Mayer.....	50.00

LEAD HOUSE.

Contents.

(Mayer, p. 1487.)

Value, as per Mayer.....	$250.00

5184

FIRE HOUSE.

Contents.

(Mayer, p. 1488.)

Value, as per Mayer.....	250.00

VALVE HOUSE.

Contents.

(Mayer, p. 1488.)

Photometer closet, etc.	
Value, as per Mayer.....	650.00
Pressure gauges.	
Value, as per Mayer.....	10.00
Bristol Recording Gauge.	
Value, as per Mayer.....	35.00
Electrical pressure indicator.	
Value, as per Mayer.....	250.00

OCTAGONAL VALVE HOUSE.

(Mayer, p. 1488.)

Value, as per Mayer..... 400.00

TIN SMITH SHOP.

Contents.

(Mayer, p. 1488.)

Value, as per Mayer..... 550.00

STORE ROOM.

Contents.

(Mayer, p. 1488.)

Value, as per Mayer..... 60.00

5185 OFFICE BUILDING.

Contents.

(Mayer, p. 1488.)

Cost, as per Mayer.....	1,650.00	
Depreciation, 20 per cent.		
Value		1,320.00

CHEMICAL APPARATUS—COMPLETE LABORATORY.

Cost, as per Mayer.....	4,000.00	
Depreciation, 20 per cent.		
Value		3,200.00

ENGINE ROOM.

Contents.

(Mayer, p. 1489.)

Knowles feed pump.		
Cost, as per Mayer.....	840.00	
Depreciation, 10 per cent.		
Value		756.00
Blake compound feed pump.		
Cost, as per Mayer.....	996.00	
Depreciation, 10 per cent.		
Value		900.00
Cameron pump.		
Value, as per Mayer.....		286.00
Connersville exhausters.		
Value, as per Mayer.....		5,753.00

2 Buckeye engines.		
Cost, as per Mayer.....	6,182.00	
Depreciation, 15 per cent.		
Value, as per Mayer.....		5,355.00
3 Mackenzie exhausters.		
Value, as per Mayer.....		5,000.00
5186 3 Rowland engines.		
Cost, as per Mayer.....	3,642.00	
Depreciation, 15 per cent.		
Value		3,100.00
2 leather belts.		
Value, as per Mayer.....		275.00
1 leather belt.		
Value, as per Mayer.....		85.00
2 Mackenzie exhausters.		
Value, as per Mayer.....		2,607.00
2 vertical engines.		
Value, as per Mayer.....		388.00
1 Armington & Simms engine.		
Cost, as per Mayer.....	1,155.00	
Depreciation, 15 per cent.		
Value		980.00
3 Buckeye engines.		
Cost, as per Mayer.....	12,144.00	
Depreciation, 15 per cent.		
Value		10,323.00
3 Sturtevant blowers.		
Cost, as per Mayer.....	5,950.00	
Depreciation, 15 per cent.		
Value		4,900.00
2 Cameron pumps.		
Value, as per Mayer.....		1,126.00
1 slate gauge board.		
Value, as per Mayer.....		120.00
Steam water pressure gauges, etc. (Mayer, p. 1491)		
Value, as per Mayer.....		4,500.00
3 belts.		
Value, as per Mayer.....		396.00
Blast piping.		
Value, as per Mayer.....		1,094.00

5187 MACHINE SHOP.

Contents.

(Mayer, p. 1491).

Cost, as per Mayer	5,935.00	
Depreciation, 10 per cent.		
Value		5,350.00

OLD RETORT HOUSE.

Contents.

(Mayer, p. 1492).

2 stacks of 8 benches of sixes, 32 single benches.		
Cost to build, new.....	48,000	
Depreciation, 10 per cent.		
Value		43,200.00
Worthington duplex fire pump.		
Value, as per Mayer.....		170.00
2 drill pumps.		
Value, as per Mayer		152.00

SMITH SHOP.

Contents.

(Mayer, p. 1492).

Value, as per Mayer.....	$1,376.00

NEW SHOP BUILDING.

Contents.

(Mayer, p. 1492).

Value, as per Mayer.....	823.00

CARBURETTER SHOP.

Contents.

(Mayer, p. 1492).

Air compressor.	
Value, as per Mayer.....	2,612.00
5188 Cameron pump.	
Value, as per Mayer.....	2,612.00

Knowles pump.
Value, as per Mayer..... 4,180.00

2 rectangular pumps.
(Mayer, p. 1493)
Value, as per Mayer..... 283.00

2 rectangular tanks.
Value, as per Mayer..... 77.00

1 steel trap.
Value, as per Mayer..... 50.00

RETORT HOUSE ON 22D STREET.

CONTENTS.

3 Salt water condensers, dimensions as given.
Cost, as per Mayer..... $92,120
Depreciation, 10 per cent.
Value $82,900

1 similar condenser.
Cost, as per Mayer..... 30,700
Depreciation, 10 per cent.
Value 27,600

GENERATOR HOUSE.

Machines 6-13.

CONTENTS.

(Mayer, p. 1493).

8 sets Lowe water gas apparatus with 12 ft. generators, 16 ft. high; 11 ft. carbureters, 16 ft. high; 11 ft. superhouse, 25 ft. high; 8 wash boxes, 4 ft. high.
Cost, new $132,000
Depreciation, 10 per cent.
Value $118,880

5189 Cast iron floors and columns surrounding machines.
Value, as per Mayer..... 47,520
Not included in apparatus, as value as set down in building schedule.

2 hydraulic elevators.
Value, as per Mayer..... 3,800

2 Cameron pumps.
Value, as per Mayer..... 162

Small gas piping, etc.
(Mayer, p. 1494)
Value, as per Mayer..... 279.00

Industrial Railway.
(Mayer, p. 1494)
Value as per Mayer..... 342.00

BUILDING OVER BOILER AND COKE STORAGE HOUSE.

CONTENTS.

2 Babcock & Wilcock boilers, 500 h. p.		
Cost	$12,000.00	
Depreciation, 5 per cent.		
Value		$11,400.00
2 new boilers, 600 h. p.		
Cost, new	15,000.00	
Depreciation, none.		
Value		15,000.00
2 A. & T. boilers, 500 h. p.		
Cost	12,000.00	
Depreciation, 5 per cent.		
Value		11,400.00
2 steel stacks.		
Value, as per Mayer.....		3,440.00
2 breeches for stacks.		
(Mayer, p. 1498)		
Value, as per Mayer.....		887.00
5190 1 additional stack.		
Value, as per Mayer.....		573.00
2 A. & S. engines.		
Cost, as per Mayer.....	2,310.00	
Depreciation, 15 per cent.		
Value		1,965.00
2 fan blowers.		
Value, as per Mayer.....		902.00
3 presses.		
Value, as per Mayer.....		2,422.00
1 tar head.		
Value, as per Mayer.....		440.00

1 horizontal engine.
Value, as per Mayer..... 250.00

1 cast iron tank.
Value, as per Mayer..... 2,320.00

2 wrought iron tanks.
(Mayer, p. 1496)
Value, as per Mayer..... 150.00

1 wrought iron rectangular tank.
Value, as per Mayer..... 626.00

3 No. 4 Cameron pumps.
Value, as per Mayer..... 784.00

200 ft. Industrial Railway track.
Value, as per Mayer..... 1,649.00

GENERATOR HOUSE ON 22D STREET.

CONTENTS.

(Mayer, p. 1496).

5 sets Lowe water gas apparatus.
13 ft. x 16 ft. 6 in. generators.
Cost, new $77,500
Depreciation, 10 per cent.
Value 70,000

5191 1 experimental oil gas apparatus.
(Mayer, p. 1497)
Cost, new 8,000
Depreciation, 90 per cent.
Value 800

6 Hazelton boilers, 250 h. p. each
Cost, new 18,000
Depreciation, 5 per cent.
Value 17,100

1 Cameron pump.
Value, as per Mayer..... 82

1 Cameron pump.
Value, as per Mayer..... 85

1 Worthington pump.
Value, as per Mayer..... 87

Item No. 13.
(Mayer, p. 1497)

Pipe charging station, etc.
Value, as per Mayer..... 47,520

RETORT HOUSE ON 22D STREET.

(Mayer, 1497).

20 single benches of sixes.		
Cost, new	$30,000	
Depreciation, 10 per cent		
Value		$27,000
40 enameled wash basins.		
(Mayer, 1498)		
Value, as per Mayer		2,420
2 tar separater tanks.		
Value, as per Mayer		3,226
1 Worthington pump.		
Value, as per Mayer		299
5192 2 Cameron pumps.		
Value, as per Mayer		836
1 Cameron pump.		
Value, as per Mayer		522
1 Worthington pump.		
Value, as per Mayer		337
2 Cameron pumps.		
(Mayer, 1500)		
Value, as per Mayer		161
1 Cameron pump.		
Value, as per Mayer		275
Oil tank.		
(Mayer, 1500)		
Value, as per Mayer		176

PUMP HOUSE CONTENTS.

2 Worthington pumps.	
Value, as per Mayer	338
1 Cameron pump.	
Value, as per Mayer	522
1 Blake pump.	
Value, as per Mayer	237
2 Knoll's pumps.	
Value, as per Mayer	356
2 Cameron pumps.	
Value, as per Mayer	161

1 Cameron pump.
Value, as per Mayer..... 366

2 wrought iron tanks.
Value, as per Mayer..... 620

1 Foster pump.
Value, as per Mayer..... 388

2 wrought iron tanks.
Value, as per Mayer..... 345

5193 SHED Nos. 1, 2, 3 and 4, CONTENTS.

(Mayer, 1501)

1 elevator.
Value, as per Mayer..... $1,195

1 Cameron pump.
Value, as per Mayer..... 444

1 elevator.
Value, as per Mayer..... 1,995

1 boiler.
Value, as per Mayer..... 478

1 accumulator.
Value, as per Mayer..... 1,196

PURIFIER HOUSE CONTENTS.

(Mayer, p. 1502)

8 boxes, 22 x 36 x 3 top with wrought iron covers, cast iron columns and beams.

2 sets of hydraulic lifting gears and 2 36 in. centre seals.

Cost, new	$43,000	
Depreciation, 5 per ce		
Value		41,000

CONDENSER AND SCRUBBER HOUSE CONTENTS.

(Mayer, 1503-4-5).

2 scrubbers and 6 condensers.

Value, as per Mayer, after making corrections and deductions (p. 1505)..	$92,280	
Less	16,380	
		81,900

1 oil gas meter.
Value, as per Mayer..... 3,850

Steel tank.
(Mayer, 1509.)
Value, as per Mayer..... $1,850

12 Steel tanks.
(Mayer, 1509-1512.)
Value, as per Mayer..... $16,270

10 Steel tanks.
(Mayer, 1509.)
Value, as per Mayer..... $15,115

Steel tank.
(Mayer, 1509.)
Value, as per Mayer..... $1,475

RECAPITULATION.

Value of all apparatus and contents of plant as above $913,284.00
Mr. Mayer gives value of above (p. 1372) as..... $1,139,677.00

CONSOLIDATED GAS COMPANY.

TWENTY-FIRST STREET STATION.

(Mayer, p. 1373.)

CONNECTIONS TO THE APPLIANCES IN THE PLANT.

Cast iron pipe.
8 in. to 36 in. in diameter, 6,624 ft.
Cost new .....
Depreciation,
Value .....

5197 Steel riveted pipe.
16 in. to 36 in. diameter, 4,772 ft.
Cost new .....
Depreciation,
Value .....

Wrought iron pipe.
1½ in. to 12 in. diameter, 1,550 ft.
Cost new .....
Depreciation,
Value .....

Valves.
16 12-in., 5 16-in., 1 18-in., 18 20-in., 48 24-in., 113 30-in., 27 36-in., 12 36-in. regulator valve.

RECAPITULATION.

Value of all of the above yard connections and connections to appliances	$146,400.00
Mr. Mayer (1373) gives value for all of above yard connections, etc., as	$218,201.00

HOLDERS AND BRICK TANKS.

(Mayer, 1592 and 1373.)

4 Holders, 400,000 cu. ft. capacity.
(Mayer, 1592 and 1373.)
Description as given.

Cost	$115,700	
Depreciation, 10 per cent.		
Value		$104,100

1 holder, 1½ million cu. ft. capacity.
(Mayer, 1592 and 1373.)
Description as given.

Cost	$72,000	
Depreciation, 10 per cent.		
Value		65,000

Brick tanks for 400,000 cu. ft. capacity holders.
(Mayer, 1593.)
5198 Description as given.

Cost	$118,000	
Depreciation, 0.		
Value		$118,000

Brick tank for 1½ million cu. ft. holder.
(Mayer, 1593.)
Description as given.

Cost	$110,000	
Depreciation, 0.		
Value		$110,000

Brick tank for 149,500 cu. ft. holders.
(Mayer, 1374.)
Description as given.

Value	$15,000

Brick tank for 280,000 cu. ft. holder.
(Mayer, 1374.)
Description as given.

Value	$15,000

Holders in steel tanks.
1 holder, capacity 149,500 cu. ft.
(Mayer, 1374.)
Description as given.

Cost	$16,500	
Depreciation, 10 per cent.		
Value		$15,000

Holders in steel tanks.
1 holder, capacity 280,000 cu. ft.
(Mayer, p. 1374.)
Description as given.

Cost	$31,000	
Depreciation, 10 per cent.		
Value		$28,000

RECAPITULATION.

Value of all of above holders and tanks	$470,100
Mayer (1374) gives value of all of above holders, with their tanks, as	$665,910

5199 NINETY-NINTH STREET PLANT.

SUMMARY OF VALUES, JANUARY, 1907.

Buildings	$187,461.00
Apparatus	178,067.00
Yard Connections	33,550.00
Holders and Tanks	145,630.00
	$544,708.00

CONSOLIDATED GAS COMPANY.

99TH STREET STATION.

BUILDINGS.

ENGINE HOUSE, BOILER HOUSE, PUMP HOUSE, MACHINE SHOP, RETORT & ACCUMULATOR.

(Mayer, pp. 1374 & 1535).

5 houses under one roof, 273 ft. 3 in. x 57 ft. 5 in. x 28 ft. brick building.

Cost, etc.	$77,000	
Depreciation, 10 per cent.		
Value		$70,000

GENERATOR HOUSE.

(Mayer, pp. 1375 & 1535).

2 story brick building, 69 ft. x 67 ft. 4 in. x 24 ft. 6 in.		
Cost, etc.	$28,000	
Depreciation, 10 per cent.		
Value		$25,000

FOUNDATIONS FOR ONE AIR CONDENSER.

(Mayer, pp. 1375 & 1535).

Value, as per Mayer's appraisal	$900

FOUNDATIONS FOR SALT WATER CONDENSER.

(Mayer, pp. 1375 & 1535).

Value, as per Mayer's appraisal	$368

5200 OFFICE BUILDING.

(Mayer, 1375, 1535).

2 story brick, 42 ft. x 30 ft. 8 in. x 30 ft. 6 in.		
Cost to build complete, new materials.	$7,500	
Depreciation, by reason of physical deterioration, 15 per cent.		
Value		6,500

METER HOUSE.

(Mayer, 1375, 1535).

1 story brick, 52 ft. x 39 ft. x 27 ft.		
Cost to build complete, new materials.	$8,700	
Depreciation, by reason of physical deterioration, 10 per cent.		
Value		$8,000

PURIFIER HOUSE.

(Mayer, 1375, 1535).

1 story brick, 124 ft. x 61 ft. 6 in. x 30 ft.		
Cost to build complete, new materials.	$20,000	
Depreciation, by reason of physical deterioration, 10 per cent.		
Value		$18,000

LIME HOUSE.

(Mayer, 1375, 1535).

1 story brick, 75 ft. x 15 ft. 9 in. x 18 ft.

Cost to build complete, new material..	$3,400	
Depreciation, by reason of physical deterioration, 15 per cent.		
Value		$2,900

5201 VALVE HOUSE.

(Mayer, 1375, 1535).

10 ft. x 12 ft. x 10 ft.

Cost to build complete, new materials.	$80	
Depreciation, by reason of physical deterioration, 10 per cent.		
Value		$72

FOUR VALVE HOUSES.

(Mayer, 1375, 1535).

Octagonal frame buildings, 8 ft. between parallel sides.

Cost to build complete, new materials, $150 each	$600	
Depreciation, by reason of physical deterioration, 10 per cent.		
Value		$540

CONDENSER AND SCRUBBER.

(Mayer, 1375, 1535).

1 story brick, 52 ft. x 39 ft. x 27 ft.

Cost to build complete, new materials.	$8,900	
Depreciation, by reason of physical deterioration, 10 per cent.		
Value		$8,000

EXHAUSTER HOUSE.

(Mayer, 1375, 1536).

1 story brick, 42 ft. 8 in. x 27 ft. x 25 ft.

Cost to build complete, new materials.	$6,000	
Depreciation, by reason of physical deterioration, 10 per cent.		
Value		$5,400

5202 TAR SEPARATOR SYSTEM.

(Mayer, 1375, 1536).

Cost to build complete, new materials.	$1,350	
Depreciation, by reason of physical deterioration, 5 per cent.		
Value		$1,280

PUMP PIT.

(Mayer, 1375, 1536).

23 ft. x 13 ft. 8 in. x 10 ft. deep.

Cost to build complete, new materials.	$600	
Depreciation, by reason of physical deterioration, 5 per cent.		
Value		$570

TAR STORAGE.

(Mayer, 1536).

Value, as per Mayer..... $128

COAL SHED.

(Mayer, 1375, 1536).

1 story brick, 125 ft. x 46 ft. x 18 ft.

Cost to build complete, new materials.	$10,000	
Depreciation, by reason of physical deterioration, 15 per cent.		
Value		$8,500

FILTER PRESS HOUSE.

(Mayer, 1375, 1536).

1 story frame, 13 ft. x 20 ft. x 7 ft.

Cost to build complete, new materials.	$250	
Depreciation, by reason of physical deterioration, 10 per cent.		
Value		$225

5203 WALLS AROUND WORKS.

(Mayer, 1375, 1536).

Brick walls, 663 ft. of wall, average height 10 ft. 12 in. thick.

Cost to build complete, new materials.	$5,000	
Depreciation, by reason of physical deterioration, 10 per cent.		
Value		$4,500

TIMBER FENCING.

(Mayer, 1536).

Dressed lumber, [illegible] ft. high.

Cost to build complete, new material..	$800	
Depreciation, by reason of physical deterioration, 10 per cent.		
Value		$720

COVER FOR DOORS OF OIL TANK.

(Mayer, 1375, 1536).

Cost to build complete, new materials.	$400	
Depreciation, by reason of physical deterioration, 10 per cent.		
Value		$360

FRAME BUILDING.

(Mayer, 1376)

7 ft. 6 in. x 125 ft. x 6 ft.
Foundations under hot scrubbers.

(Mayer, 1376, 1536)

Value, as per Mayer's Appraisal.....	$498

5204 NINETY-NINTH STREET STATION.

RECAPITULATION.

Value of all buildings complete, including all foundations for buildings and apparatus	$162,461	
Add for drainage, flagging, grading, paving, surfacing, lawns and other miscellaneous improvements	25,000	
Value		$187,461
Mr. Mayer's appraisal of all of above (p. 1376)		248,247

APPARATUS.

GENERATOR HOUSE.

(Mayer, 1538.)

Four sets of 10-ft. U. G. I. low water gas apparatus with 24-in. take-off mains, each set consisting of 10-ft. diameter by *by* 14-ft. high generator with 3 19½-in. diameter coaling towers.

One 10-ft. diameter by 11-ft. high carbureter with necessary water and oil connection.

One 10-ft. diameter by 22-ft. high superheater with necessary stacks, 36-in diameter by 20-ft. high over all. One 8 ft. 6 in. diameter by 4 ft. hot wash box.

These sets have necessary hot gas valves with air jackets, also necessary generators, carbureters and superheaters, interlocking gears. Also motors, gear apparatus, coal guards, etc.

Cost new	$45,200	
Depreciation, 10 per cent.		
Value		$40,500

The Water Gas Apparatus (Mayer, 1539) is valued at $56,000 and $8,167 for the charging floor. The apparatus was installed in 1904 and price was obtained from the U. G. I. Imp. Co.

5205 OUTSIDE GENERATOR HOUSE.

(Mayer, 1539.)

Air condenser.

Value, as per Mayer.....		$7,615

Salt Water Condenser.

(Mayer, 1540.)

Value, as per Mayer.....		$9,845

OFFICE FURNITURE.

Cost, as per Mayer.....	$2,000	
Depreciation, 20 per cent.		
Value		$1,600

METER HOUSE.

(Mayer, 1540.)

1 13 x 6 station meter.

Cost new.....	$7,900	
Depreciation, 15 per cent.		
Value		$6,700

1 13x6 station meter.

Cost new.....	$5,700	
Depreciation, 15 per cent.		
Value		$4,900

PURIFIER HOUSE.

(Mayer, 1514.)

Two sets of 4 purifiers 21 x 20 ft. x 3 ft. deep. Three layers of trays for each box. Size of connections 24 in. Two center seals, diameter 6 ft. and 5 ft. deep. Two hydraulic lifts for purifier covers constructed of steel. Size 15 ft.

Cost new.....	$25,000	
Depreciation, 5 per cent.		
Value		$24,000

LIME HOUSE.

(Mayer, 1541.)

Value, as per Mayer..... $100

5206 VALVE HOUSE CONTENTS.

(Mayer, 1541.)

Value, as per Mayer..... $30

Another valve house.
Value, as per Mayer..... $30

Grip house.
Value, as per Mayer..... $30

Another grip house.
Value, as per Mayer..... $30

Another valve house.
Value, as per Mayer..... $30

Another valve house.
Value, as per Mayer..... $30

Another valve house.
Value, as per Mayer..... $10

Another valve house.
Value, as per Mayer..... $10

Another grip house.
(Mayer, 1541.)
Value, as per Mayer..... $4,420

Cast iron condenser.
Value, as per Mayer..... $15,680

EXHAUSTER HOUSE CONTENTS.

(Mayer, 1542.)

1 Exhauster.
Value, as per Mayer..... $1,865

Greenfield engine.
Cost new..... $825
Depreciation,
Value $685

5207 TAR SEPARATING SYSTEM IN YARD.

(Mayer, 1542.)

Value, as per Mayer..... $2,250

PUMP PIT.

(Mayer, 1542.)

2 Knoll pumps.
Value, as per Mayer..... $265

1 Davidson pump.
Value, as per Mayer..... $215

1 Cameron pump.
Value, as per Mayer..... $145

Tar Storage.
Value, as per Mayer..... $675

12 Steel tanks.
(Mayer, 1542.)
Value, as per Mayer..... $13,837

2 Oil storage tanks.
(Mayer, 1543.)
Value, as per Mayer..... $3,271

Another steel tank.
(Mayer, 1543.)

1 Crib valve tank.
Value, as per Mayer..... $602

2 Hydraulic lifts.
Value, as per Mayer..... $4,200

2 Platform scales.
Value, as per Mayer..... $300

YARD CONTENTS.

(Mayer, p. 1543.)

2 Hot scrubbers.
Value, as per Mayer..... $1,625

5208 2 Hydrogen scrubbers.
Cost as per Mayer..... $1,560
Depreciation,
Value.....

ENGINE HOUSE.

(Mayer, 1546.)

2 Sturtevant engines.
Cost new..... $1,200
Depreciation, 15 per cent.
Value..... $1,020

1 Armington & Simms horizontal engine.
Cost new in place..... $1,200
NOTE—All values for engines and apparatus are in place.
Depreciation, 15 per cent.
Value $1,040

3 B. F. Sturtevant gas blowers.
Value, as per Mayer..... $350

2 McKenzie Exhausters.
Value, as per Mayer..... $3,726

2 Greenfield vertical engines.
Cost new..... $2,000
Depreciation, 15 per cent.
Value $1,700

2 Knoll pumps.
Value, as per Mayer..... $210

BOILER HOUSE CONTENTS.

2 Batteries B. & W. type boilers, etc.
Cost new, including stack and breaching $14,000
Depreciation, 5 per cent.
Value $13,300

1 Sturtevant blower.
(Mayer, 1549.)
Value, as per Mayer..... $1,250

5209 1 Gould & Garrison pump.
Value, as per Mayer..... $175

1 Patterson & B. feed water meter.
Value, as per Mayer..... $265

CARBURETER HOUSE CONTENTS.

(Mayer, 1547.)

(Used as pump house and machine shop.)

Value, as per Mayer..... $3,510

PUMP HOUSE CONTENTS.

(Mayer, 1548.)

Value, as per Mayer..... $820

RETORT HOUSE.

(Mayer, 1549.)

11 through benches of sixes, back to back.
Cost new.....
Depreciation,
Value .....

CUMULATOR HOUSE.

(Mayer, 153.)

Value, as per Mayer..... $960

1 Steel water tank.
(Mayer, 1553.)
Value, as per Mayer..... $347

1 Davidson pump.
(Mayer, 1553.)
Value, as per Mayer..... $370

Wooden tank.
Value, as per Mayer..... $375

Filter Press House.
(Mayer, 1553.)
Value, as per Mayer..... $1,700

Howe scales.
Value, as per Mayer..... $300

5210 Miscellaneous tanks.
(Mayer, 1553-1554.)
Value, as per Mayer..... $1,154

RECAPITULATION.

Value of all above apparatus, contents of plant..... $178,067.00
Mr. Mayer (pp. 1376-1554) gives the value of all above apparatus as..... $268,177.00

CONNECTIONS TO THE APPLIANCES IN THE PLANT.

(Mayer, p. 1376.)

Cast iron pipes.
4 in. to 36 in. diameter, 5,861 feet.
Cost new.....
Depreciation,
Value .....

Steel riveted pipes.
30 in. diameter, 339 feet.
Cost new.....
Depreciation,
Value .....

Wrought iron pipes.
1½ in. to 10 in. diameter, 5,552 feet.
Cost new.....
Depreciation,
Value .....

Valves.
4 3-in., 4 4-in., 24 3-in., 25 4-in., 13 6-in., 10 8-in., 10 10-in., 2 12-in., 18 16-in., 18 20-in., 30 24-in., 1 30-in.
Cost new.....
Depreciation,
Value .....

RECAPITULATION.

Value of all the above yard connections and connections to appliances.....	33,550.00
Mr. Mayer (p. 1377) gives a value for all of above connections of.....	55,248.00

5211 HOLDERS IN BRICK TANKS.

(Mayer, 1377 & 1593).

2 holders, 600,000 cu. ft. capacity, description as given.		
Cost	$54,600	
Depreciation, 15 per cent.		
Value		$46,400
1 holder, 300,000 cu. ft. capacity, description as given.		
Cost	16,300	
Depreciation, 15 per cent.		
Value		13,850
1 holder, 100,000 cu. ft. capacity, description as given.		
Cost	7,350	
Depreciation, 20 per cent.		
Value		5,880
Brick tanks for above:		
2 brick tanks for 600,000 cu. ft. capacity holders.		
Cost	33,000	
Depreciation,		
Value		33,000

Brick tank for 300,000 cu. ft. holder.		
Cost	27,000	
Depreciation,		
Value		27,000
Brick tank for 100,000 cu. ft. holder.		
Cost	19,500	
Depreciation,		
Value		19,500

RECAPITULATION.

Value of all of the above tanks and holders	$145,630
Mr. Mayer (p. 1593 and 1377) gives value for all these holders and tanks as	262,106

5212 EIGHTEENTH STREET PLANT.

SUMMARY OF VALUES, JANUARY, 1907.

Buildings	$77,781.00
Apparatus	6,505.00
Yard connections	2,800.00
Holders & tanks	147,800.00
	$234,886.00

EIGHTEENTH STREET.

FIVE FRAME SHEDS.

(Mayer, p. 1378, 1556).

Cost to build, complete, new materials..	$80	
Depreciation, by reason of physical deterioration, 10 per cent.		
Value		$72

ENGINE AND EXHAUSTER HOUSE.

(Mayer, 1378, 1556).

1 story brick, 36 ft. 6 in. x 19 ft. x 15 ft. 6 in., all 30 ft. high.		
Cost to build complete, new materials.	$4,850	
Depreciation, by reason of physical deterioration, 5 per cent.		
Value		$4,600

VALVE HOUSE.

(Mayer, 1378—1556).

1 story brick, 19 ft. x 22 ft. x 20 ft.

Cost to build complete, new materials..	$1,185	
Depreciation, by reason of physical deterioration, 5 per cent.		
Value		$1,125

5213 BOILER HOUSE.

(Mayer, 1378, 1556).

1 story brick, 46 ft. 2½ in. x 14 ft. x 14 ft. 3 in.

Cost to build complete, new materials.	$1,875	
Depreciation, by reason of physical deterioration, 10 per cent.		
Value		$1,690

WAGON SHED & PAINT SHOP.

(Mayer, 1556).

Cost to build complete, new materials..	575	
Depreciation, by reason of physical deterioration, 10 per cent.		
Value		$520

WAGON SHED.

(Mayer, 1378-1556).

21 ft. x 28 ft. x 15 ft.

Cost to build complete, new materials.	$650	
Depreciation, by reason of physical deterioration, 10 per cent.		
Value		$585

BRICK AND BROWNSTONE BUILDING CONTAINING GAS HOLDERS.

(Mayer, 1378-1556).

Cost to build complete, new materials...	$72,000	
Depreciation, by reason of physical deterioration, 25 per cent.		
Value		$54,000

COAL STORAGE YARD BETWEEN 18TH AND 19TH STREETS.

(Mayer, 1378-1558).

520 ft., about 9 ft. high.

Cost to build complete, new materials.	$950	
Depreciation, by reason of physical deterioration, 50 per cent.		
Value		$475

5214 COAL STORAGE YARD BETWEEN 17TH AND 18TH STREETS.

(Mayer, 1378-1558).

720 ft., about 9 ft. high.

Cost to build complete, new materials.	$1,800	
Depreciation, due to physical deterioration, 50 per cent.		
Value		$900

BRICK WALLS IN YARD BETWEEN 17TH AND 18TH STREETS.

(Mayer, 1378-1558).

12 in. thick, 180 ft. long.

Cost to build complete, new materials.	$1,150	
Depreciation, due to physical deterioration, 20 per cent.		
Value		$920

1 timber coal holding trestle.

(Mayer, 1378-1558)

Value, as per Mayer's appraisal.....	$3,744

600 ft. of brick retaining wall.

(Mayer, 1378-1558)

Wall, 12 in. thick, about 9 ft. above grade.

Cost to build complete, new materials.	$5,200	
Depreciation, by reason of physical deterioration, 20 per cent.		
Value		4,150

RECAPITULATION.

Value of all buildings complete, including foundations for buildings and apparatus	$72,781	
Add for grading, sewers, piping, flagging and other miscellaneous improvements	5,000	
Value of all of above		$77,781
Value as given by Mr. Mayer (p. 1379, 1558) (probably including holders).		182,901

5215 CONSOLIDATED GAS COMPANY.
18TH STREET STATION.

APPARATUS.

FRAME BUILDING IN HOLDER YARD CONTENTS.

(Mayer, 1558).

2 vertical boilers.
Value, nothing.

ENGINE HOUSE AND VALVE HOUSE CONTENTS.

(Mayer, 1558).

1 McKenzie exhauster. Value, as per Mayer	$1,505
1 Greenfield engine. Valve, as per Mayer	418
Counter-shafting, etc. Value, as per Mayer	80
3 King pressure gauges. Value, as per Mayer	105
1 Arch gauge, etc., etc. Value, as per Mayer	130

BUILDING CONTAINING PRESSURE GAUGES CONTENTS.

(Mayer, 1559).

Value, as per Mayer 167

BOILER HOUSE CONTENTS.

(Mayer, 1559).

1 horizontal tubular boiler.
Value, per Mayer $1,815

Pressure gauges.
Value, as per Mayer..... 25

Locker.
Value, as per Mayer..... 50

STABLE CONTENTS.

(Mayer, 1559).

Stalls.
Value $250

Locker.
Value, as per Mayer..... 60

5216 COAL STORAGE YARD.

(Mayer, 1559).

Trestle work, etc.
Cost, new $9,500
Depreciation, 80 per cent.
Value $1,900

RECAPITULATION.

Value of all apparatus and contents of yard as given above..... $6,505
Mr. Mayer (pp. 1379 and 1560) gives the value of above as..... 14,019

CONNECTIONS TO THE APPLIANCES IN THE PLANT.

(Mayer, p. 1379.)

Cast iron pipes, 20 in. in diameter, 1,809 ft.
Cost, new .....
Depreciation.
Value .....

Wrought iron connections, 1 in. to 3 in. in diameter, 360 ft.
Cost, new .....
Depreciation.
Value .....

Valves, eight, 1-in.; three; 2-in.; four, 16-in.; twenty-six, 24-in.

RECAPITULATION.

Value of all of the above yard connections and connections to appliances		$2,800.00
Mr. Mayer (p. 1379) gives the value of above connections as		21,987.00

5217 HOLDERS IN BRICK TANKS.

(Mayer, p. 1379)

2 holders, each of 205,000 cu. ft. capacity, description as given.		
Cost	$21,320	
Depreciation, 50 per cent.		
Value		$10,700
4 holders of 255,000 cu. ft. capacity, description as given.		
Cost	53,000	
Depreciation, 30 per cent.		
Value		37,100
Brick tanks and foundations for above holders:		
2 brick tanks for the first mentioned holders of 205,000 cu. ft. capacity		
Cost of these tanks is included in value of building which surrounds them.		
4 brick tanks for the 4 255,000 cu. ft. capacity holders, description as given.		
Cost	103,000	
Depreciation, 3 per cent.		
Value		$100,000

RECAPITULATION.

Value of all of the above tanks and holders	$147,800
Mr. Mayer (p. 1379) gives the value for above holders and tanks as	$209,743.00

5218 SIXTY-THIRD STREET PLANT.

SUMMARY OF VALUES, JANUARY, 1907.

Buildings	$8,540.00
Apparatus	379,600.00
Yard connections	2,800.00
Holders and tanks	232,800.00
	$623,740.00

BUILDINGS.

ENGINE ROOM.

(Mayer, 1382-1571)

Frame building, 24 ft. x 28 ft. x 10 ft.		
Cost to build complete, new materials.	$770	
Depreciation by reason of physical deterioration 10 per cent.		
Value		$700

VALVE HOUSE.

(Mayer, 1382-1571)

Frame, 16 ft. x 30 ft. x 10 ft. 6 in.		
Cost to build complete, new materials.	$600	
Depreciation by reason of physical deterioration 10 per cent.		
Value		$540

BOILER HOUSE.

(Mayer, 1383-1571)

17 ft. x 30 ft. x 15 ft. 6 in.		
Cost to build complete, new materials.	$900	
Depreciation by reason of physical deterioration, 10 per cent.		
Value		$800

5219 BRICK WALL AROUND PROPERTY.

(Mayer, 1382-1571)

10 ft. above grade, 5 ft. 6 in. below grade.		
Cost to build complete, new materials:	$5,000	
Depreciation by reason of physical deterioration, 20 per cent.		
Value		$4,000

RECAPITULATION.

Value of all buildings, including foundations for buildings and apparatus.	$6,040.00	
Add for grading, sewers, piping, flagging, and other miscellaneous improvements	2,500.00	
Value of all of above.....		$8,540.00
Value of above, per Mayer's appraisal (pp. 1383-1571).....		11,429.00

APPARATUS.

ENGINE ROOM.

(Mayer, p-. 1383 and 1571.)

1 30-h. p. Morse engine.
Cost new and erected..... $300
Depreciation, 15 per cent.
Value $255

1 Sturtevant exhauster.
Value as per Mayer..... 735

VALVE HOUSE.

CONTENTS.

(Mayer, pp. 1383 and 1571.)

Value as per Mayer..... $650

5220

BOILER HOUSE.

1 boiler.
Value as per Mayer..... $1,125

1 pump.
Value as per Mayer..... 340

1 injector, etc.
Value as per Mayer..... 45

YARD CONTENTS.

(Mayer, pp. 1383 and 1571.)

1 pump.
Value as per Mayer..... $314

1 tank.
Value as per Mayer..... 332

APPARATUS.

RECAPITULATION.

Value of all above apparatus..... $3,796
Mr. Mayer (1383 and 1571) gives the value of above apparatus as..... 4,828

CONNECTIONS TO THE APPLIANCES IN THE PLANT.

(Mayer, p. 1382.)

Cast iron connections, 24 in. to 30 in. diameter, 225 feet.

Cost new	
Depreciation,	
Value	

Wrought iron connections, 1½ in. to 2 in. diameter, 80 feet.

Cost new	
Depreciation,	
Value	

Valves, 2 24 in., 4 30 in.

Cost new	
Depreciation,	
Value	

5221

RECAPITULATION.

Value of all of the above yard connections and connections to appliances..	$2,800
Mr. Mayer (p. 1383) gives value of above connections, etc., as	7,887

HOLDERS WITH BRICK TANKS.

(Mayer, 1383 and 1572.)

1 3,000,000-ft. holder, description as given.

Cost	$129,320	
Depreciation, 5 per cent.		
Value		$122,800

Brick tank and foundation, description as given.

Cost	110,000	
Depreciation.		
Value		110,000

RECAPITULATION.

Value of the above holder and tank.		232,800
Mayer (1384 and 1572) gives total value for holder and tank of	$420,367	

SIXTY-FIFTH STREET PLANT.

SUMMARY OF VALUES, JANUARY, 1907.

Buildings	$42,650.00
Apparatus	6,206.00
Yard connections	8,415.00
Holders and tanks	834,900.00
Total	$892,171.00

BUILDINGS.

ENGINE HOUSE.

(Mayer, 1384-1572.)

Frame building 20 ft. x 38 ft. x 20 ft.

Cost to build complete, new materials.	$2,640	
Depreciation, by reason of physical deterioration, 15 per cent.		
Value		2,300

5222

EXHAUSTER HOUSE.

(Mayer, 1384-1573).

2 story brick building, 27 ft. x 42 ft. x 45 ft.

Cost to build complete, new materials.	$7,300	
Depreciation, by reason of physical deterioration, 10 per cent.		
Value		$6,600

BOILER HOUSE.

(Mayer, 1384-1573.)

1 story brick building, 24 ft. x 32 ft. x 21 ft.

Cost to build complete, new materials.	$2,600	
Depreciation, by reason of physical deterioration, 10 per cent.		
Value		$2,400

BOILER HOUSE EXTENSION.

(Mayer, 1384-1573.)

1 story brick, 16 ft. x 20 ft. x 16 ft.

Cost to build complete, new materials.	$960	
Depreciation, by reason of physical deterioration, 10 per cent.		
Value		$850

BRICK WALLS AROUND PROPERTY.

(Mayer, 1385-1573.)

2164 ft., averaging about 12 ft. at different heights.		
Cost to build complete, new materials.	$35,000	
Depreciation, due to physical deterioration, 20 per cent.		
Value	28,000	

SIXTY-FIFTH STREET STATION.

RECAPITULATION.

Value of all buildings complete, including foundations for buildings and apparatus	$40,150	
5223 Add for grading, sewers, piping, flagging and other miscellaneous improvements	2,500	
Value of all of above		$42,650
Value of above, as per Mayer's appraisal		51,183

CONSOLIDATED GAS COMPANY.

SIXTY-FIFTH STREET STATION.

APPARATUS.

ENGINE AND VALVE HOUSE CONTENTS.

(Mayer, pp. 1385 and 1572)

1 beam engine.		
Cost, erected	$300.00	
Depreciation, 15 per cent.		
Value		255.00

EXHAUSTER HOUSE.

(Mayer, pp. 1573 and 1385)

1 Rowland engine, etc.		
Cost, new	$1,320.00	
Depreciation, 15 per cent.		
Value		$1,118.00
1 Mackenzie exhauster.		
Value as per Mayer	1,738.00	

1 Photometer, furniture and plumbing.		
Value as per Mayer		1,000.00
Brick tanks for above holders.		
6 brick tanks for holders of 325,000 cub. ft. capacity, description as given.		
Cost	147,000	
Depreciation,		
Value		147,000
2 brick tanks for 24,000,000 cub. ft. holders, description as given.		
Cost	320,000	
Depreciation,		
Value		320,000

5224 BOILER HOUSE.

(Mayer, pp. 1574 and 1385.)

2 horizontal tubular boilers.		
1 horizontal tubular boiler.		
Value for the 3, new and set up.....	$2,325.00	
Depreciation, 5 per cent.		
Value		$2,200.00
1 feed pump.		
Value as per Mayer.....		57.00
1 injector.		
Value as per Mayer.....		38.00
1 steel stack.		
Value as per Mayer.....		171.00

BOILER HOUSE EXTENSION.

CONTENTS.

(Mayer, pp. 1574 and 1385.)

1 horizontal tubular boiler.		
Cost, new	$1,400.00	
Depreciation, 5 per cent.		
Value		$1,325.00
1 injector.		
Value as per Mayer.....		42.00

APPARATUS.

RECAPITULATION.

Value of all above apparatus.....	$6,206.00
Mr. Mayer (pp. 1574 and 1585) gives as value for the above apparatus.....	10,159.00

CONNECTIONS TO THE APPLIANCES IN THE PLANT.

(Mayer, p. 1385.)

Cast iron pipe, 16 in. to 30 in. diameter, 750 feet.

Cost, new .....
Depreciation,
Value .....

5225 24 in. pipe, 260 feet.

Cost, new .....
Depreciation,
Value .....

Wrought iron pipe, 500 ft., 2 in. and less in diameter.

Cost, new .....
Depreciation .....
Value .....

Valves, 23-30 in., 4-16 in.

RECAPITULATION.

Value of all of the above yard connections and connections to appliances.....	$8,415
Mr. Mayer (p. 1385) gives as value for above connections	20,406

HOLDERS IN BRICK TANKS.

HOLDERS IN CONCRETE FRAMES.

(Mayer, 1386 and 1575.)

2 holders, 325,000 cub. ft. capacity. Description as given:		
Cost	$32,800	
Depreciation, 10 per cent.		
Value		$29,500
4 holders, same size as above, description as given.		
Cost	65,600	
Depreciation, 10 per cent.		
Value		59,100
2 holders, 4,000,000 cub. ft. capacity, description as given.		
Cost	294,000	
Depreciation, 5 per cent.		
Value		279,300

5226 RECAPITULATION.

Value of all of the above tanks and holders	$834,900
Mayer (1577 and 1386) gives value for all holders and tanks of	1,212,873

ONE HUNDRED AND ELEVENTH STREET PLANT.

Summary of Values, January, 1907.

Buildings	$64,085.00
Apparatus	42,421.00
Yard connections	16,800.00
Holders and tanks	777,100.00
Total	$900,406.00

BUILDINGS.

Office Building.

(Mayer, 1356-1578.)

2 story brick, 50 ft. x 25 ft. x 31 ft. 6 in.		
Cost to build complete, new materials.	$5,240	
Depreciation, due to physical deterioration, 15 per cent.		
Value		$4,500

EXHAUSTER HOUSE.

(Mayer, 1386-1578.)

1 story brick, 66 ft. x 54 ft. x 27 ft. 4 in.		
Cost to build complete, new materials.	$19,600	
Depreciation, due to physical deterioration, 20 per cent.		
Value		$15,000

BOILER HOUSE.

(Mayer, 1386-1578.)

44 ft. 3 in. by 32 ft. 3 in. x 18 ft.		
Cost to build complete, new materials.	$3,000	
Depreciation, due to physical deterioration, 15 per cent.		
Value		$2,500

5227 HOISTING HOUSE ENGINE.

(Mayer, 1386-1578.)

Frame shed, 13 ft. x 18 ft. x 7 ft.		
Cost to build complete, new materials.	$160	
Depreciation, due to physical deterioration, 10 per cent.		
Value		$140

SCALE HOUSE.

(Mayer, 1386-1578.)

12 ft. x 15 ft. x 13 ft.		
Cost to build complete, new materials.	$375	
Depreciation, by reason of physical deterioration, 10 per cent.		
Value		$335

STABLE.

(Mayer, 1387-1578.)

Brick building with basement, 75 ft. x 32 ft. x 25 ft.		
Cost to build complete, new materials.	$7,800	
Depreciation, by reason of physical deterioration, 10 per cent.		
Value		$7,000

COAL STORAGE.

(Mayer, 1387-1578.)

Area 67 ft. x 52 ft.		
Cost to build complete, new materials.	$330	
Depreciation, by reason of physical deterioration, 10 per cent.		
Value		$300

GENERATOR HOUSE.

(Mayer, 1387-1578.)

1 story brick 72 ft. x 48 ft. x 27 ft.		
Cost to build complete, new materials.	$7,400	
Depreciation, by reason of physical deterioration, 50 per cent.		
Value		$3,700

5228 WOODEN TOOL SHOP.

(Mayer, 1387-1578.)

48 ft. 6 in. x 65 ft. 9 in.

Cost to build complete, new materials.	$1,700	
Depreciation, by reason of physical deterioration, 10 per cent.		
Value		$1,500

RETORT HOUSE.

(Mayer, 1387-1578.)

Brick, 200 ft. x 52 ft. x 22 ft.

Cost to build complete, new materials.	$26,000	
Depreciation, by reason of physical deterioration, 40 per cent.		
Value		$15,000

FOUNDATION FOR OIL TANK.

(Mayer, pp. 1387-1578.)

43 ft. diameter, 11 ft. high, of brick, 12 in. thick.

Cost to build complete, new materials.	$2,760	
Depreciation, by reason of physical deterioration, 10 per cent.		
Value		$2,500

BLACKSMITH SHOP.

(Mayer, pp. 1387-1578.)

Brick, 26 ft. x 34 ft. x 19 ft.

Cost to build complete, new materials.	$2,600	
Depreciation due to physical deterioration, 20 per cent.		
Value		$2,000

FENCES, STABLE YARD.

(Mayer, pp. 1387-1578.)

270-ft. wooden fence 8 ft. high.

Cost to build complete, new materials.	$350	
Depreciation, by reason of physical deterioration, 20 per cent.		
Value		$280

5229 FENCE ABOUT HOLDERS.

(Mayer, pp. 1387-1579.)

1140 ft., 8 ft. high.		
Cost to build complete, new materials,	$650	
Depreciation by reason of physical deterioration, 20 per cent.		
Value		$525

FENCE AROUND WORKS.

(Mayer, pp. 1387-1579.)

1000 ft., 8 ft. high.		
Cost to build complete, new materials,	$1,200	
Depreciation by reason of physical deterioration, 20 per cent.		
Value		$980

BRICK WALL ON FIRST AVENUE.

(Mayer, pp. 1387-1579.)

56 ft. x 8 ft. high.		
Cost to build complete, new materials,	$400	
Depreciation due to physical deterioration, 20 per cent.		
Value		$325

ONE HUNDRED AND ELEVENTH STREET.

RECAPITULATION.

Value of all buildings complete, including foundations for buildings and apparatus	$56,585	
Add for grading, sewers, piping, flagging and other miscellaneous improvements	7,500	
Value of all of above.....		$64,085
Value of above per Mayer's appraisal (pp. 1387-1579).		$107,981

5230 CONSOLIDATED GAS COMPANY.

111th Street Station.

APPARATUS.

OFFICE BUILDING—CONTENTS.

(Mayer, pp. 1574 and 1387.)

Office furniture, etc.		
Value as per Mayer.....		$2,125

EXHAUSTER HOUSE.

(Mayer, pp. 1574 and 1387.)

42 valve stands.		
Value as per Mayer.....		$636
2 exhausters.		
Value as per Mayer.....		5,870
2 Payne reversible engines.		
Cost, new, set up.....	$4,000	
Depreciation, 15 per cent.		
Value		3,600
2 Connelly governors.		
Value as per Mayer.....		4,500
1 copper and feed water heater.		
Value as per Mayer.....		345
Plumbing, piping, etc.		
Value as per Mayer.....		$1,610.00
Photometer, etc.		
Value as per Mayer.....		$805.00

BOILER HOUSE.

CONTENTS.

(Mayer, pp. 1579 and 1388.)

Steel stack	
Value as per Mayer.....	$507.00
B-eech for stack.	
Value as per Mayer.....	157.00
3 boilers.	
Value as per Mayer.....	5,432.00

1 pump.
Value as per Mayer..... 105.00

1 inspirator.
Value as per Mayer..... 65.00

5231 HOISTING ENGINE HOUSE.

(Mayer, pp. 1388 and 1580.)

1 Lidgerwood hoisting engine.
Cost, new $750.00
Depreciation, 15 per cent.
Value $640.00

SCALE HOUSE.

CONTENTS.

(Mayer, pp. 1580 and 1388.)

1 wagon scale.
Value as per Mayer..... $195.00

STABLE.

CONTENTS.

(Mayer, pp. 1580 and 1388.)

Stable fittings, etc.
Value as per Mayer..... $1,105.00

TOOL SHOP.

(Mayer, pp. 1580 and 1388.)

Lockers, 4 beam engines, etc.
Value as per Mayer..... $1,778.00

RETORT HOUSE.

(Mayer, pp. 1580 and 1388.)

1 stack, 34 benches of 6 retorts each, retorts 20 ft. long.
Cost, new $65,300
Depreciation, 90 per cent.
Value..... $6,500.00

BLACKSMITH SHOP.

CONTENTS.

(Mayer, pp. 1581 and 1388.)

Value as per Mayer..... $350.00

5232 YARD.

CONTENTS.

(Mayer, pp. 1581 and 1388.)

Oil tank.

Value as per Mayer..... $1,652.00

Atmospheric condenser.

Value as per Mayer..... 4,444.00

RECAPITULATION.

Value of the above apparatus and contents of plant	$42,421.00
Mr. Mayer (pp. 1389 & 1582) gives value of all of above apparatus (p. 1582) as	$74,914.00
and on page 1389.....	$103,446.00

The lower figure is obviously the correct one.

CONNECTIONS TO THE APPLIANCES IN THE PLANT.

(Mayer, p. 1389.)

Cast iron pipe, 24 in. to 36 in., 550 feet.

Cost, new .....
Depreciation,
Value .....

Wrought iron pipe, 1½ in. to 4 in., 760 feet.

Cost, new .....
Depreciation,
Value .....

Valves, 41 36 in., diameter 1 24 in.

(Mayer, p. 1369.)

RECAPITULATION.

Value of all of the above yard connections, and connections to appliances.	$16,800.00
Mr. Mayer gives value of all such connections as	27,068.00

5233 TWO HOLDERS, WITH ACCOMPANYING TANKS.

Two Holders in Steel Tanks (Each of five million cubic feet capacity.)

(Mayer, 1389.)

Description as given.		
Cost, etc.	$702,200	
Depreciation, 3 per cent.		
Value		$681,100

FOUNDATION FOR ABOVE.

Description as given.		
Cost, etc., for 2 holders	$96,000	
Depreciation,		
Value		$96,000

RECAPITULATION.

Value of above holders, and foundations for same	$777,100
Mr. Mayer (p. 1389) gives the value of above holders and foundations	$704,737

ONE HUNDRED AND THIRTY-SECOND STREET PLANT.

Summary of Values, January, 1907.

Buildings	$24,540.00
Apparatus	14,514.00
Yard connections	25,170.00
Holders & Tanks	393,300.00
	$457,524.00

BUILDINGS.

1 Governor and 1 boiler house.

(Mayer, 1389-1585.)

Brick building, 100 ft. x 49 ft. x 29 ft.		
Cost to build complete, new materials.	$21,000	
No depreciation.		
Value		$21,000

5234 BOILER CHIMNEY.

(Mayer, 1390-1585.)

Value, as per Mayer.....		$3,040

RECAPITULATION.

Value of all buildings, including foundations for buildings and apparatus.	$24,040	
Add for grading, sewers, piping, flagging and other miscellaneous improvements	500	
Value of all of above.....		$24,540
Value of above per Mayer's appraisal (p-. 1390-1585)		29,776

APPARATUS.

GOVERNOR AND BOILER HOUSE.

CONTENTS.

(Mayer, p-. 1585 & 1390.)

1 vertical exhauster		
Value as per Mayer.....		$2,910.00
1 Buckeye engine		
Cost new and erected.....	$2,000.00	
Depreciation, 15 per cent.		
Value.....		1,700.00
1 in. Connolly governor		
Value as per Mayer.....		1,375.00
3 B. & W. boilers and 2 batteries		
Cost to build, new.....	5,100.00	
Depreciation, 5 per cent.		
Value.....		4,845.00
1 Knowles pump		
Value as per Mayer.....		143.00
1 Cochran feed water heater.		
Value as per Mayer.....		505.00
1 steel plate breeching		
Value as per Mayer.....		750.00
1 Crown water meter (Mayer, p. 1586)		
Value as per Mayer.....		$165.00
5235 1 injector		
Value as per Mayer.....		78.00

1 blow-off tank
Value as per Mayer..... 73.00

1 exhauster head, etc.
Value as per Mayer..... 1,885.00

Toilet & wash basins
Value as per Mayer..... 85.00

RECAPITULATION.

Value of all of above apparatus and contents of plant.. $14,514.00
Mr. Mayer (at pages 1586 & 1390) gives the value of above apparatus as..... 18,979.00

CONNECTIONS TO THE APPLIANCES IN THE PLANT.

(Mayer, p. 1390.)

Cast iron connections, 20 in. to 36 in. pipe, 2,400 feet.
Cost, new
Depreciation,
Value,

Valves: Nine 36-in.; seven 30-in.; six 24-in.; four 20-in.
Cost, new
Depreciation
Value,

RECAPITULATION.

Value of all of the above yard connections and connections to appliances $25,170.00
Mr. Mayer (p. 1391) gives for the above connections of. 47,714.00

HOLDERS WITH ACCOMPANYING TANKS.

1 Holder (of five million cubic feet capacity) In steel tank (Mayer, 1391)
Description as given.
Cost to build $356,100
Depreciation, 5 per cent.
Value $338,300

5236 Foundation for above:
Cost, etc. 55,000
Depreciation,
Value..... 55,000

RECAPITULATION.

Value of above holders with steel tank and foundation... $393,300
Mayer, p. 1391, gave value of above holder, tank, and foundation as 393,965

INWOOD PLANT.

Summary of Values, January, 1907.

Buildings	$2,900.00
Apparatus	827.00
Yard connections	545.00
Holders & Tanks	7,500.00
	$11,772.00

INWOOD.

EXHAUSTER AND VALVE HOUSE AND DWELLING.

(Mayer, 1391-1589.)

1 story building, 22 ft. x 24 ft. x 11 ft. 4 in. and 24 ft. high.

Cost to build complete, new materials.	$3,050.00	
Depreciation by reason of physical deterioration, 20 per cent.		
Value		$2,400

RECAPITULATION.

Value of all buildings, complete, including foundations for building and apparatus	$2,400	
Add for grading, sewers, piping, flagging and other miscellaneous improvements	500	
Value of all of above		$2,900
Value of above per Mayer's appraisal (pp. 1391-1590)		$3,230

5237 EXHAUSTER HOUSE.

CONTENTS.

(Mayer, p. 1590 & 1392.)

1 6 in. Mackenzie exhauster.		
Value		$250.00
1 Smith & Sayre vertical engine.		
Cost, new and erected	$220.00	
Depreciation, 15 per cent.		
Value		187.00

1 12 in. governor.
Value..... 50.00

1 upright tubular boiler.
Cost to build, new..... 200.00
Depreciation, 5 per cent.
Value..... 190.00

Steam pipe connections and fittings and pressure gauges.
Value..... 100.00

1 Cameron pump.
Value..... 50.00

RECAPITULATION.

Value of all of above apparatus and contents of plant.... $827.00
Mr. Mayer (p. 1392 & 1590) gives the value of all of above apparatus and contents as..... $1,640.00

CONNECTIONS TO THE APPLIANCES IN THE PLANT.

(Mayer, p. 1392.)

Cast iron pipe, 6 in. to 12 in, 170 feet.
Cost, new,
Depreciation,
Value,

5238 Wrought iron pipes, 1 in. to 2 in. diameter, 80 feet.
Cost, new,
Depreciation,
Value,

Valves: Six 6-in.; four 12 in.
Cost, new,
Depreciation,
Value,

RECAPITULATION.

Value of all of above yard connections and connections to appliances $545.00
Mr. Mayer (p. 1392) gives value for the above connections as 923.00

CONSOLIDATED GAS COMPANY.

INWOOD STATION.

HOLDERS, WITH ACCOMPANYING TANKS.

Holders in brick tanks (1,060,000 cu. ft. capacity, Mayer, 1392).		
Description as given.		
Cost, new	$3,100	
Depreciation, 10 per cent.		
Value		$2,800
Brick Tank and Foundation for Above.		
Description as given.		
Cost to build	$5,200	
Depreciation, 10 per cent.		
Value		$4,700

RECAPITULATION.

Value of above holder, with tank and foundation	$7,500.00
Mr. Mayer (p. 1392) gives value of above brick tank and foundation as	$17,984.00

5239 Q. Are you able from your knowledge and experience in the construction of gas plants to state what would be the fair and reasonable cost in the Borough of Manhattan of a coal gas plant per thousand cubic feet daily capacity?

Mr. MATHEWSON: I object to that on the ground that the witness has not been shown to be competent to make such an estimate in the Borough of Manhattan; and, certainly, I did not know that that was a subject that we were to go into to-day. I thought it was the valuation of these plants only that we were to take up.

Mr. PAGE: You see, we have got a whole day and a half still in which to examine Mr. Edgerton, if we care to, I suppose, and it is necessary for the further closing up of the estimate he gave as to the cost of production of gas by certain methods, and I wanted to show what it would cost to produce a plant that would make the gas that he testified to.

Mr. MATHEWSON: The principal objection is the witness is not competent and has not been shown competent to testify to that.

Mr. PAGE: And we have the testimony of Mr. Mayer upon that point.

Mr. MATHEWSON: No.

The MASTER: I think the second ground of objection is good, that this hearing was set down for a certain specified purpose; as I recall the direction of the Court, to put in some appraisals as to the values of these plants based on this witness's examination, and if I under-

stand the direction of the Court right, his testimony is limited to this specific point. Now you have covered that.

5240 Mr. PAGE: Well, then, we will take an exception, and take the testimony under the rule.

The MASTER: All right.

Mr. MATHEWSON: Well, I will urge my objection that the witness has not been shown to be competent to give an estimate as to the cost of the construction of a plant on the Island of Manhattan, a coal gas plant to furnish the gas. He has had no experience here, concededly.

The MASTER: The disposition of that is academic. I sustained the other objections, and Page excepts, and we will have to take the answer of the witness.

Mr. PAGE: Now, you may read the question.

The STENOGRAPHER (reading): Are you able from your knowledge and experience in the construction of gas plants to state what would be a fair and reasonable cost in the Borough of Manhattan of a coal gas plant per thousand cubic feet daily capacity?

The MASTER: Of course, if you think this matter is of sufficient importance to justify taking the time and trouble in so doing, you are entitled, if you wish to prevent this going on, to decline to go on further and certify the record to the Court, if you think it is of enough importance to do so, and that would bring up the question as to whether the Senator has a right to have this set down on the record. Under the circumstances, it will take more time probably than the thing is worth.

Mr. MATHEWSON: I think my rights will be sufficiently protected by the exception, Mr. Master, without the delay that the other course would entail, and I leave it in that shape.

A. I think I can give it quite approximately to what the actual cost would be.

5241 Q. Will you state?

Mr. MATHEWSON: Same objection to this.

Mr. PAGE: All this line is taken subject to the same objection and ruling and exception, I presume, is it not?

The MASTER: Yes.

Mr. MATHEWSON: Very good; that satisfies me.

The WITNESS: I think a coal gas plant would cost about between $250 and $270 per thousand daily capacity.

Q. What is it that makes the range of $250 to $270?

A. Well, it would be according to the style in which it was built. If it was built in the plainest and still substantial manner, it might be reduced to $250; and if it was somewhat elaborated and made of such construction as we frequently see put in gas plants where they want to, as you may say, put on some style, it may be as high as $270.

Q. What would you estimate the cost of a 22 candle power water gas plant per thousand daily capacity? I mean by that a water gas plant capable of producing gas of 22 candle power.

Mr. MATHEWSON: Situated in the Borough of Manhattan?

Mr. PAGE: Yes.

A. I think that ought to be accomplished within the limit of $125 to $130 per thousand daily capacity, maximum.

Q. What would you estimate the cost of an oil and water gas plant to produce 50 candle power gas per thousand cubic feet of daily capacity?

A. About $100 per thousand; that is, if built on a very large scale; if built on a moderate scale those prices would be somewhat increased.

5242 Q. Are these estimates which you have given the cost to reproduce plants which would manufacture the gas that was testified heretofore as to the cost price?

A. Yes, sir; that is my opinion.

Q. And the various mixtures of coal and oil and water gas, and of the water gas, of which you have testified?

A. Yes, sir.

Mr. PAGE: That is all. The case is in your hands, Mr. Mathewson, as far as this witness is concerned. When are you going to cross-examine him?

Mr. MATHEWSON: That is all for you, is it?

Mr. PAGE: Yes.

Mr. MATHEWSON: Is there any further testimony on behalf of the other defendants?

The MASTER: Have you anything further, Mr. Burr?

Mr. BURR: What is the situation now?

Mr. PAGE: We have finished.

Mr. BURR: I have not anything further.

Mr. MATHEWSON: About Mr. Edgerton, I shall not want him probably until about two o'clock. I cannot get a chance to look at these things. I do not quite see how I will be able to look at these things and begin the cross-examination before to-morrow morning. In other words, if I get through with Mr. Marsh this morning, it would be hardly possible for me to get anything to eat and look at these things. Would it not be well to postpone Mr. Edgerton's cross-examination until to-morrow morning?

The MASTER: You are the best judge of that.

Mr. PAGE: It is within our time. You can use it as you wish.

Mr. MATHEWSON: Yes. Of course I consented to putting
5243 this testimony in in this shape, and the result is that while it takes time to look at it, we save time in the long run.

Mr. PAGE: We are agreeable to anything you wish.

The MASTER: He only wants to know whether you will want Mr. Edgerton to sit around here all day?

Mr. MATHEWSON: I think he had better come to-morrow morning.

Mr. PAGE: Very well.

WILLIAM D. MARKS, recalled for cross-examination, testified as follows:

Mr. MATHEWSON: Before Mr. Page and Mr. Kirby go, as they represent the Gas Commission of the State of New York, or the members of it who are defendants, I ought, I think, to call the attention of the Master to the fact that while the secretary of the Commission

brought here these documents in the custody of the Commission, and you will recall, was to permit us to examine the reports in the office, and counsel assented, we are having some difficulty in getting permission, and we have now been held off for a couple of weeks, and have not been able to see them.

Mr. PAGE: I am glad you brought that up.

Mr. MATHEWSON: We just got a letter from Mr. Hazzard this morning.

Mr. PAGE: I did not hear of that difficulty until the other day, and I went down to see them, but the Commissioners had gone away. I will give you full access to them if I have to get an order from the Governor.

5244 Cross-examination by Mr. MATHEWSON:

Q. Doctor, I think you said that you do not manufacture gas apparatus; did I ask you that question?

A. I do not, sir.

Q. Nor are you in the business of a seller of gas apparatus, are you?

A. I do not sell any machinery; I am a consulting engineer.

Q. And have you ever constructed a gas plant in the Island of Manhattan?

A. Never.

Q. You say you began the inspection of these plants from the 17th of December?

A. 21st Street, if I remember rightly—no, the 42nd Street.

Q. Yes. And your inspection of the plants covered more or less of the time from the 17th of December up to what date?

A. Up to December 31st; that is to the last day in the year.

Q. Inclusive?

A. My continuous inspection——

Q. No, but was it December 31st inclusive?

A. Inclusive, if I remember rightly.

Q. Now, you began at 42nd Street on the 17th of December and on the first date, December 17th, you came about half-past one and remained until five, didn't you?

A. I can give you the exact hour; if I remember rightly, I examined the walls, the outside of the buildings, located the matter geographically and reported to the office somewhere about one o'clock, after going the rounds outside, so as to topographically enlighten myself as to localities.

Q. That was without entering the works?

A. Without entering the works. It was necessary in order to get a clear idea and know how everything lay, on my first visit to them.

Q. You first went into the 42nd Street Works on December 17th and was there from about 1.30 P. M. to 5 P. M., were you not?

5245 A. Well, I cannot recollect exactly; I know I was there during the afternoon.

Q. That was about right, wasn't it?

A. Yes, it seems about right.

Q. And you returned on December 18th at 10.30 A. M., and remained until about 3.30 P. M., is that right?

A. That appears to be about the whole time that I was on the interior of the works; I subsequently visited and walked around the outside for the purpose of getting a general idea of the condition of the walls and buildings from the exterior.

Q. Well, having finished with the 42nd Street plant, which next did you inspect?

A. The next appears to be on December 19th, 21st Street Station.

Q. And on that day you entered the plant about 11 o'clock in the morning, didn't you?

A. It is marked here 11 A. M.

Mr. BURR: On the morning of the 19th.

The WITNESS: Of the 19th. I should say to you that that entry in every case was preceded by a general topographical survey, going around all the physical property.

Q. That is walking around the streets outside of the works?

A. So as to locate the various pieces of property.

Q. You mean walking around in the different streets outside of the works so as to see the outside of the works from the street?

A. That is it, to locate them in their relative position.

Q. Well, we will understand that as to each plant without your repeating it?

A. Yes.

Q. Now, you entered the 21st Street plant on December 19th at 11 A. M., for your examination. What time did you leave on that day?

5246 A. The last entry is for the retort house December 19th, 5 P. M., that means after 5 o'clock.

Q. Yes. Then on December 20th you went again in the morning, remaining until about 12 o'clock noon, making the actual time spent in the 21st Street Works on December 19th and 20th about eight hours. That is correct, is it not?

A. Leaving between 12 and 1 on the same day.

Mr. BURR: What was that, the 20th of December?

The WITNESS: The 20th of December.

Q. Making about eight hours for the two days at the 21st Street plant?

A. It was all that was possible under the circumstances——

Q. I know that, Doctor, but——

A. I think about that, yes.

Q. You made no actual measurement during this inspection of the 21st Street plant, did you?

A. I paced off some of the greater distances as given by Mr. Mayer and generally found them correct.

Q. But you took no actual measurements by tape?

A. No, used no tape; it was impossible.

Q. In this or any of the plants?

A. In none of the plants did I use any.

Q. And such measurements as you made were eye measurements or paced measurements or something of that sort?

A. Yes.

Q. And is it not a fact that you found Mr. Mayer's descriptions of sizes of apparatus and plants were substantially accurate so far as they were given in the schedules which you had?

A. I think that Mr. Mayer's measurements were correct in all cases that I examined. There were a few typographical errors, the locality of which I cannot recall now, which at first appeared to be incorrect and afterwards in the summations showed that they
5247 were typographical errors and not original mistakes; at least it appeared so to me.

Q. Now, you went from 21st Street to the 44th Street plant, did you not?

A. 44th Street plant is marked December 21, 10 to 11 A. M.

Q. 44th Street plant, 10 to 11 A. M., December 21st?

A. December 21st.

Q. Was that the entire time that you were inside the 44th Street station?

A. Oh, no.

Q. Very good, give us the rest?

A. I visited the exterior and boiler house December 20, between 4 and 5 P. M.

Q. Well, as a matter of fact, were you not at the 44th Street plant from about 2.15 Thursday until about 4.15 of that day and then on the following morning you were present from about 11 to 12 o'clock, did you say, or 10 to 11?

A. I am looking that up. I was there at the engine and exhauster house December 20, at 2 P. M.

Q. Yes. And you remained in the plant how long on that day?

A. Until between 4 and 5 o'clock on December 20th.

Q. Well, that would make how many hours for the two days, about?

A. Apparently on December 21st, between two and three hours, and on December 20th, between four and five hours, or three and four hours, I don't know which.

Mr. BURR: Say altogether about eight hours.

The WITNESS: Something like that.

Q. Well, Doctor, won't you think a moment and see if it is not the fact that you arrived there on the 20th at about a quarter past two and left about a quarter past four, making two hours; and then on the next morning you arrived at about half-past ten and left about 12:15, which was about an hour and three-quarters?

5248 A. Oh, it may have been; it is simply a question of seeing and identifying things as rapidly as possible, that is all.

Q. What plant did you next visit?

A. The 99th Street station appears as checked December 21st, 1 P. M.; that must mean between 1 and 2; that is the first.

Q. Were you in the 99th Street plant at any other time than that, which you have just stated?

A. Not inside of it, but outside of it forming an opinion as to depreciation twice subsequently.

Q. That is walking around the outside of it in the street?

A. Pacing the length of the walls; examining the brick work and the roofs, and generally forming an opinion as to its antiquity.

Q. How much time did you spend in the interior inspection?

A. On one day traveling to and from the office, nearly three hours. On another day about two. I don't recall the day. I was sorry to go, but I——

Q. But I mean about the exterior of this plant?

A. I should say a couple of hours altogether.

Q. After the 99th Street plant you examined what plant?

A. On December 22nd, I examined the 111th Street station, the Inwood station, the 132nd Street station and 65th Street station.

Q. What time did you enter the 111th Street station and how long a time did you spend in the station?

A. Apparently, I entered the 111th Street station at noon, 12 o'clock——no, at 11 o'clock.

Mr. BURR: Your answer is that you entered there at 11 o'clock?

The WITNESS: At 11 o'clock, and I examined the last detail of the stable between 1:30 and 2.

Q. Then you went to 132nd Street, you say, and how long a time did your examination there consume on December 22d?

5249 A. Between 2 and 3 P. M.

Q. And then at Inwood, what time did you take?

A. Between three and four; and 65th Street between four and five.

Q. At 65th Street you arrived on December 22d at 4:15 and remained until five, did you not?

A. I said between four and five. I have it marked here.

Q. Well, then, what station did you then visit after the 65th Street station?

A. The 63rd Street station on December 24th, 10 A. M. There may be something wrong about that, that may have been December 23rd.

Q. No, it was December 24th, according to my memorandum. December 23rd was Sunday, you know?

A. I did not know that, because it did not make any difference in my works since I have been connected with this trial.

Q. Then on December 24th you visited the 63rd Street station, and you were in that station from about 10:30 A. M. until 11 A. M. on that day, were you not?

A. That was about as recorded.

Q. Now, how about 18th Street?

A. 18th Street was reached December 24th, at noon.

Q. And how long did you remain at 18th Street station? You remained there until about one o'clock, didn't you?

A. It must have been a little after one, sir. I see it is marked one here.

Q. That is not the reason you think it was after one, is it?

A. Between one and two it would be always marked one, and if two o'clock, between two and three, and so on.

Q. Have you testified what time you spent in inspecting the 14th Street plant, which is the only one left?

A. I did in my testimony mention the fact that I spent with others, I think, the better part of a week.

5250 Q. In the 14th Street plant?

A. In the 14th Street plant.

Q. Now, to be quite fair to you, it was absolutely physically impossible, was it not, to have examined all these plants, excluding 14th Street, within the time that you had to examine them and verify measurements of apparatus and the descriptions generally of the apparatus in the detail which Mr. Mayer had described it in his schedules?

A. I could not have made those measurements in as many months as I used days, apparently.

Q. And your observation of the apparatus, so far as you could make it in comparing it with the data and descriptions which Mr. Mayer gave, proved Mr. Mayer's data to be so substantially accurate that you were willing to accept his descriptions as fair descriptions of the apparatus?

A. The physical descriptions in no case did I find to be out; although they may have been out, in no case that I investigated were the physical measurements and descriptions given by Mr. Mayer wrong.

Q. Now, Mr. Mayer in his appraisal of the plants divided the property into four classes: buildings, apparatus and contents, connections and holders; is it not the fact that as to the last three classes, that is to say apparatus and contents of buildings, connections and holders Mr. Mayer's estimate of first cost or actual cost new was substantially correct, according to your judgment?

A. I accepted Mr. Mayer's statement as to yard connections without any criticism at all, based on my general results on the measurements on the other apparatus inside of the building. His apparatus as far as structural or first cost was concerned, with a few—and I think those were not large—exceptions, did not differ essentially from such figures as I could obtain.

Q. And the same was true as to the first cost of holders, was it not?

A. In the case of holders the difference was somewhat

5251 greater, but it was not a serious difference.

Q. So that we may say, speaking generally, that you accepted his values of yard connections, and that as to apparatus and contents and holders, Mr. Mayer's testimony as to first cost or original cost was substantially correct, according to your view?

A. It was.

Q. And that you differed with him chiefly as to the amount of depreciation that should be allowed on first cost, considering the present condition of the machinery?

A. And also the valuation of the buildings?

Q. Yes, but I am leaving buildings out?

A. Yes.

Q. Then leaving buildings out, you would quarrel with Mr. Mayer's figures as to apparatus and contents and holders with reference only to the amount for depreciation that should be allowed off original cost?

A. That is right.

Q. That reduces the subject, then, to the question of this depreciation and the cost of buildings. The statement that you have put in as part of your evidence shows your estimate of the original cost of buildings, as well as of depreciation, does it not?

A. It does.

Q. The duties of a consulting engineer do not include the construction as a contractor of buildings, do they?

A. It is an injury to a consulting engineer to become a contractor.

Q. But you have not as a contractor constructed buildings in the Island of Manhattan?

A. Never.

Q. Nor as an owner of buildings?

A. Nor as an owner.

Q. In reference to the 14th Street plant, the valuation of $1,460,-064 at page 5063 of the testimony appears to be reached on a different basis from that which you have chosen in passing upon the value of the buildings and apparatus in the case of the other
5252 plants; that is right, is it not?

A. That is right. That is, it differs in this respect, that in the 14th Street plant I accept in a lump sum the figures given by Mr. Rowland, while in the case of all the other stations I verified each and every item. While at the 14th Street station there were three men engaged in overlooking the apparatus, at all the other stations I was alone; with the result that it was quite possible to accomplish many times the amount of work that you could where there were three.

Q. In other words, for the 14th Street plant you took the appraisal of Mr. Rowland as to certain buildings and apparatus as $1,706,-294?

A. Yes.

Q. And you deducted from that depreciation on the basis of fifty years expiration at .85 of one per cent. per annum, making 42½ per cent., or in dollars $725,175?

A. Yes.

Q. And left a balance of $981,119. I am correct so far, am I not? That is page 5063?

A. Yes.

Q. And then you added to that what you considered property added since 1884?

A. Yes.

Q. Bringing up your total to $1,464,064?

A. Yes, I did.

Q. Now, Doctor, did you figure up the amount which you have taken off by way of depreciation from the cost of these plants in order to reach your total of the $9,348,692 shown at pages 5058 and 5108 for all the plants?

A. I turned in a completed schedule of those.

Q. Yes, but I did not see the total of your valuations of plant before deduction of depreciation?

A. Nor did I obtain that.

Q. Well, now, I will ask you if you will not in a moment, in order to form a basis for our computation, figure up the amounts which you have deducted for depreciation. If you will take a piece of paper, I have it here, and I think I can assist you so we can get it in a few minutes?

5253 A. There was a complete schedule in good shape turned in yesterday.

Q. Yes, it is on the record. Now, taking these appraisals of the different plants in order; if I am correct, you deducted for 14th Street (p. 5063 of the record), for depreciation, three items, to wit, $725,175, $13,200 and $6,472, making a total——

A. One moment.

Q. Making a total of $744,847 total depreciation, deducted from first cost?

A. Yes, sir.

Q. Now, for 42nd Street (p. 5064 of the record) you deducted depreciation of $472,182?

A. $472,182.

Q. And for 44th Street (p. 5069 of the record) you deducted a depreciation of $132,808, and for 21st Street (p. 5076 of the record) you deducted depreciation 28 per cent. of the plant, or $612,304?

A. Correct.

Q. And for 99th Street (p. 5084 of the record) you deduct 21 per cent. of the plant, or $129,974?

A. $129,974.

Q. And from the 18th Street (p. 5089 of the record) you deducted 42½ per cent., or $165,290?

A. $165,290.

Q. And from the 63rd Street station (record, p. 5093) you deduce 10 per cent., or $43,644?

A. $43,644.

Q. And for 65th Street (record, p. 5095) you deduct 20 per cent., or $81,499?

A. $81,499.

Q. And for 111th Street (record, p. 5098) you deduct 30 per cent. for depreciation and 30 per cent. for depreciation, neglect and decay, amounting to 60 per cent. of the entire plant, or $96,780?

A. $96,780.

Q. And for the 132nd Street station, I find no deduction (record, pp. 5102-03)?

5254 A. The 132d Street station exceeds Mr. Mayer's valuation by about three thousand dollars, being entirely new and in excellent condition.

Q. And at Inwood (record, p. 5103) you seem to have made a deduction, as nearly as I can make it, of the difference between $20,300 and $10,596; that is, original cost and the value as you state it, or $9,704. Is that right, or is the depreciation greater than that? It was not clear.

A. I make it $9,704.

Q. Now, won't you tell me how much depreciation that makes, all told, that you have deducted from first cost?

A. Unless I made some error in addition, $2,488,832.

Q. Well, that is within a few hundred dollars of my hasty computation, Doctor, and it is undoubtedly substantially correct. We will take it without further verifying.

A. Two and one-half millions.

Q. Now, will you add that amount of depreciation to your $9,348,692 which you have as the net value, and say what that would make for the original cost?

A. $11,837,524.

Q. Now, Mr. Mayer's figures of original cost, which you have stated you approve in substance, he testified was the amount which the company would actually have to pay to contractors to instal the plant and apparatus. You understand that to be the case, do you not?

A. I so understood Mr. Mayer.

Q. Now, there is an engineering item, including the grading, sewering, laying out of the plant, inspection, superintendence, and other items, which the company has to meet in addition to that which Mr. Mayer and other witnesses have testified was relatively ten per cent. That is a fair figure, isn't it, Dr. Marks, ten per cent.?

A. No, it is not in the case of an inventory. In the case of an estimate an engineer will add ten per cent., five per cent. or fifteen per cent. for things he has not foreseen. In the case of an
5255 inventory the apparatus is all there for examination, and you are expected to give its valuation, as Mr. Rowland did, without any additional percentage.

Q. I am not referring now to the things which are unforeseen, but to the things which are foreseen. It is true, is it not, that a company in establishing a plant must necessarily have an engineering force which lays out the plant; it must have inspectors and superintendents; it must have grade and cut a field; it must drain, and it must do many other things which it does not pay the contractor for who instals the plant or builds the building; that is clear, isn't it?

A. Yes.

Q. Now, supposing that that amounts to ten per cent., as the other witnesses have testified, in addition to this contractor's payment, that would mean an additional expense to the company?

A. The drainage of a plant bears no relation to the apparatus upon it. There is no ten per cent., or five per cent., or fifteen per cent.

Q. No, I am speaking about the expenditure that the company must go to in order to have its complete plants in working and operating condition in addition to the bills which it pays the contractor for simply bringing the apparatus and installing it and erecting the building?

A. Yes.

Q. Yes. Now, those additional items of engineering expense in laying out the plant originally, which the company has to pay, and draining, which is always part of a plant on low ground, and the cutting and filling and grading, which, of course, is paid for?

A. Yes.

Q. (Continuing). The company has to meet additionally, and I am now trying to get at what that would mean, plus the valuation of the plant representing the amount paid to the contractors to instal it. Now, if ten per cent. is a figure for those things, those ad-
5256 ditional expenses to the company before it gets started, that would mean something in addition to the $11,837,524, which you have mentioned, an additional expense to the company, wouldn't it?

A. If that is not included then there would have to be an additional allowance.

Q. Well, from your observation, Mr. Mayer did not include it, but expressly excluded it, and added the ten per cent. subsequently, and in that he was confirmed by Dr. Humphreys, who said that his experience was nearer fifteen per cent. Now, won't you add ten per cent. to this $11,837,524, and see what that would make, assuming that ten per cent. is to be taken into consideration?

A. Acting as your computer, $13,021,476.

Q. Well, everyone seemed to concede, including Mr. Logan, that the construction of a plant of this kind would take *in toto* more than two years, and it was assumed therefore that the interest for one year at say five per cent. was a low figure. We have not added any interest yet, and how much would five per cent. amount to in this valuation of plant, if you will be good enough to act as my computor, and add it, Doctor?

A. $13,612,952.

Q. Now, that excludes, I understand, the 18th Street plant, which was taken by the City——

A. Abandoned.

Q. Whether it has been paid for or not. Yes, and where does your foundation of apparatus come in in this total? Did you include your foundation of apparatus in your valuation of buildings?

A. In every case more than included. I was exceedingly liberal.

Q. Then we will take those up one at a time, but as a matter of fact they are included in the buildings?

A. Except where I have specifically named them in my inventory.

Q. Now, refer to page 5063 of the record, where you de-
5257 duct for depreciation, fifty years, at .85 of one per cent., amounting to 42½ per cent. for the 14th Street plant, and follow the same method of computation in other plants. I understand you get this .85 of one per cent. by taking the depreciation charged off as shown in City's Exhibit 87 (Exhibits, p. 1466) amounting to a little over $220,000, and assuming that to be the depreciation rate fixed by the directors of the Consolidated Company in the resolution which is described in the Exhibit, is that right?

A. I cannot answer that directly. It is the very least depreciation that could be admitted.

Q. But let us get at how you reach the .85 of one per cent. Didn't you testify heretofore that you reached that by assuming a capitalization of two dollars per thousand and applying this depreciation shown at page 1466 of the Exhibit book to that, on the ground that that was a normal depreciation?

A. On the ground that that was the very lowest depreciation. I will explain to you——

Q. You took the .85 of one per cent. on the ground that that was the rate fixed by the Board of Directors in this resolution?

A. Yes.

Q. Now, in order to be consistent, because we must be that whatever else we are, let us look at that page 1466 of Exhibits for a minute and see if that does not deal with depreciation on not only plant which we are now dealing with, but mains, services, meters and so forth—you remember that it does?

A. Oh, yes.

Q. Now, let us take the amount for plant which was charged off for depreciation that year, which was $3,424. Will you put it down there? And now will you divide that by the valuation of plant, excluding ten per cent. for the company's engineering and miscellaneous expenses and the five per cent. for interest, to wit, $11,837,524,

5258 or compute it in any other way that you please, so that we can see whether on plants the directors did charge off .85 of one per cent. in 1905, even assuming a two dollar per thousand valuation. In other words, what per cent. did the company charge off in the year 1905 of the valuation of plant, even as you have given it, $11,837,524 original value?

A. The two dollars of which I spoke included everything, beginning with the real estate and ending with the meter structural cost.

Q. Yes, I know; that is a general proposition. We are now coming down to this direct resolution and seeing how much depreciation on plants the directors charged off, you having stated in a previous statement that you assumed that they charged what they thought was a fair rate for depreciation?

A. Yes. Now it would be impossible to take a single entry for a single year of the single operation of a plant as an average. It is quite fair to take the average depreciation throughout the whole plant straight through, covering, as I say, everything from the building straight through to the meters, as has been done here. In other words, that single entry would be absurd for the very simple reason that the United States Government in reckoning its depreciation on brick buildings gives from one to one and one-quarter per cent. or one and one-half per cent., and on wooden buildings from two to two and one-half to three per cent. That is what is known as the Tiffany Estimate Standard.

Q. And if the Government expends on its buildings to offset that depreciation the proper amount year by year it can keep those buildings in repair and in good condition for an indefinite period, can it not?

A. Possibly it might, but in checking up——

Q. You do not understand when the Government charges off those rates to depreciation it spends nothing to make good that depre-

5259 ciation but merely allows the building to rot away year by year, do you?

A. Oh, no, but it fixes the life of the building.

Q. I will come to the buildings a little later. I am now on an-

other point. Do you mean to say that you can take a single year for depreciation or for repairs and renewals spent on a plant and say that that necessarily represents a fair average?

A. I beg your pardon. I accepted it as the very lowest possible figure that can be——

Q. Yes, you understood that that was on a fair average for depreciation which the company had shown by its experience for the past twenty years, didn't you?

A. Had that been left to me to fix the depreciation I would certainly have fixed it at one per cent. or a trifle over it, as a matter of my own judgment.

Q. But we are now speaking about the amount which is to be charged to depreciation year by year as a normal amount?

A. Yes.

Q. In order to get that you say you would have to take the average of a considerable period, the same as Mr. Hall said, wouldn't you?

A. Why, certainly. All of the whole outfit for any one year, not any particular item of the outfit.

Q. But could you take the depreciation or the repairs and renewals even for the whole outfit of the company for a single year and say that they represent in every case an average, a normal rate?

A. You could not, but you might accept it as the minimum, lowest allowable amount, which happened to be fixed by the Board of Directors in this case .85 of one per cent.

Q. And if that was less than the average or normal amount it would be as Mr. Hall said and as I think you said and certainly as Prof. Bemis said, equalizing in considering the cost of gas by adding to it a sufficient amount to make up a fair average?

A. Something of that sort, yes.

Q. Now you have taken from that the year 1905, in com-
5260 puting this .85 of one per cent., and will you tell me how much per cent. the company charged off in 1905 on the plant—my original question; whether it is right or wrong is another proposition?

A. Do you refer to the $11,837,524.

Q. Yes, your original cost, because the cost of depreciation would cut off the value.

A. Why, it is a very small fraction of one per cent.

Q. It is about .02 of one per cent., isn't it?

A. Nearer .03.

Q. Well, call it .03 of [illegible] per cent?

A. .03 of one per cent.

Q. How much depreciation would that amount to if applied to your $11,837,524?

A. Well, that is the same thing, I have just given it to you.

Q. Yes, but I say computed on that—that would be then $3,424, wouldn't it?

A. Yes.

Q. Instead of your depreciation of .85 of one per cent.?

A. Yes.

Q. What would that be, .85 of one per cent.?

A. On that amount?

Q. Yes. It would amount to a little over $100,000, wouldn't it?

A. $100,617.95.

Q. Now, as a matter of fact, if you take the depreciation item applying to an entire plant you would be unfair to buildings, would you not, because buildings do not depreciate so rapidly as meters and services and horses and wagons, and things of that sort, which form a part of the property of the company, do they?

A. Buildings do not depreciate as rapidly as the items you mention, but far more rapidly than other items that are used in a gas plant.

Q. Such as what?

A. Gas mains, for instance.

Q. But not so fast as apparatus in the plant?

A. But that depends altogether on the characteristics of the apparatus and the material from which it is made.

5261 Q. Now, in your testimony respecting 14th Street, as shown in the tables at page 5063 of the record, you show 42½ per cent. of the total amount for depreciation on property of 1884. Do you take into account that large sums have been expended in replacements and renewals of certain depreciation on those plants within the last twenty years?

A. I have estimated in every case that all the money that was necessary to keep the buildings in the most perfect repair possible had been expended and this depreciation gave for .85 of one per cent. a total life of nearly one hundred and twenty years to each building and to each piece of apparatus, from which I assumed that it would have outlived its usefulness, become obsolete and inadequate.

Q. That then, is not physical deterioration, but presents the possibility of abandonment or disuse at some future time; is that right?

A. It represents obsolescence or inadequacy within one hundred and twenty years from the time of its installation.

At 12.55 P. M. a recess for lunch was declared until 2.15 P. M.

5262 Afternoon Session.

WILLIAM D. MARKS resumed.

By Mr. MATHEWSON:

Q. I find that you testified quite fully in reference to what this .85 of one per cent. covered in depreciation as to the 14th Street plant, and I assume that the same theory applies where you have applied .85 of one per cent. to the other plants?

A. Yes.

Q. So that it will not be necessary to ask specifically about those?

A. No.

Q. I also examined you quite at length on cross-examination in reference to this statement in regard to the 14th Street plant, which you have now put in in this tabulated form.

A. Corrected within the figures as it was finally corrected in my testimony.

Q. Yes. Now, take the 42nd Street plant, a summary of which appears at page 5064. You found that plant, as well as the 14th Street plant and the other manufacturing plants, in operation, did you not, Doctor?

A. I did.

Q. And it is your information, is it not, that those manufacturing plants are making as much or more gas than they ever did before, and have made it at a lower cost within the last year?

A. That would be purely hearsay.

Q. You heard the testimony to that effect of Mr. Bradley, or one of the other officers, and you have no information to the contrary?

A. I have no information to the contrary.

Q. Now, you take the total actual first cost of buildings as $425,810.14. You say that included foundations of apparatus. Will you be good enough to state, referring to the different houses constituting those buildings as they appear on page 5065 of the
5263 record, what foundations you included in each case?

A. Referring to the 42nd Street station, and to the inventory items 1 and 2, there are——

Q. Just say what they are, because they are referred to in other places. Do you mean the valve house?

A. The valve house and vault have no specific allowance for foundation. Item 3, meter house, includes an allowance for the meter within it. Items 4 and 5, purifying house and extension foundation, and foundation for boxes and brick piers, is pretty nearly all the allowance for foundations; it is a frame building.

Q. Foundation for apparatus or foundation for the building?

A. For the building and for the apparatus.

Q. For what apparatus?

A. The purifying boxes; the building in that case is a one-story frame building, roof trusses given away and supported, and most of the timber work in process of decay and sagging.

Q. My question, Doctor, was simply what foundations of apparatus you included in your estimate of building in each one of these cases; that was all.

A. Yes. Item 6. Engine house, meter house and office, includes the allowance for foundation for exhausters, for horizontal engine, and for three meters. There was a special extra allowance in that case on account of the multiplicity of foundations in that case.

Q. What was the extra allowance included in that?

A. There was special extra allowance in that case of something like $2,168 in addition to the cost of the rest of the building. Usually it is included within the figures given. Item 9, retort house and retort house basement and bench foundations, that is for sixty benches; there was a special computation made in that case too, amounting to some twenty-eight thousand dollars of the total given of $112,692.

Mr. BURR: For foundations?

5264 The WITNESS: For foundations. Item 10, condenser and scrubber house, there was an allowance made for two scrubbers, air condenser and a cast iron box, use unknown. Item 11,

retort houses No. 2 and No. 3, there was an allowance made for six benches of six, fourteen benches of six, including also the walls of the basement.

The MASTER: What do you mean, for foundations?

The WITNESS: For foundations, yes, sir.

Q. Can you give the amount of that allowance?

A. The amount of the allowance for the walls of the basement and the retort benches foundations amount to $20,465.

Item 12, vault under the sidewalk. There is no allowance for foundation there, merely for the vault itself.

Item 13, exhauster, engine and scrubber house, both the foundations and the buildings are lumped there.

Q. Foundations for what?

A. For the exhauster and for a Greenfield engine, a No. 10 Mackenzie exhauster, two large Mackenzie exhausters, one 16 x 30 horizontal engine, one 8 x 8 Greenfield engine, rotary washer, Greenfield engine, a multitubular condenser, two oil gas scrubbers, an oil gas condenser. In other words, as I remember it now, you may say the whole basement almost was filled in so closely with foundations for various pieces of apparatus.

Q. Did you separate the allowance for each foundation, or did you compute separately the foundation for each piece of apparatus?

A. No, in that case that was beyond me. I just lumped it. The cellar was filled in, if I recall it rightly; I do not remember it exactly, but I think the cellar was just filled in.

5265 Q. Do you remember whether these foundations were brick or stone or cement, or what they were, respectively?

A. If I remember rightly, every one of these pieces of apparatus had a cut stone cap to a foundation underneath it, and this was figured as being ordinary foundation work in the way of stone. I have not got those figures with me, but I think it was figured the same as the building; that is, the cubical contents.

Q. How much did you allow for excavation for the foundations of these several pieces of apparatus?

A. The foundations in a case of that sort being adjacent to a place where it required a great deal of filling in, at the outside could not have cost for excavation fifty cents a cubic yard; that was my judgment in the matter. Of course, it was largely judgment. They required the dirt elsewhere there.

Q. In the case of these various plants, 42nd Street and others, did you allow for rock excavation in reference to holders or other apparatus?

A. In the matter of the holders, you will find that practically as far as the tanks were concerned in round figures I accepted, having no other means, either the estimate of Mr. Mayer or of Mr. Rowland very closely.

Q. Well, take the excavation for the foundations of the buildings and foundations of the apparatus which you have included in buildings. Did you allow for rock excavation in those cases?

A. In no case, in the cast of buildings, did I allow for rock excavation; always fixing the work at what might be called regulation prices for heavy excavation.

Q. Well, but rock excavation is much more expensive than dirt excavation, isn't it?

A. Rock excavation will cost you about five dollars a cubic yard blasted out.

Q. What do you call regular excavation, dirt excavation?

5266 A. Either at ten cents per cubic foot, making $2.70 a yard, or at fifteen cents it would make about $4.00 a cubic yard, and one or the other of them have been used, including both the excavation and the structure inside the excavation.

Q. Did you allow for the piling in these foundations of these various works?

A. In every building where I could learn—I accepted this on faith entirely—that piling had been used in the foundations, I used fifteen cents per cubic foot for the buildings, in the place of ten cents which I would have used in the case of ordinary foundation.

Q. In the case of ordinary foundation as you term it, what did you allow additional to your ten cents for a unit figure for dumping privileges, etc., in relation to the earth which was removed?

A. You mean in each station?

Q. Yes, did you make allowance for that?

A. Of course, this is hasty work, but so far as my judgment went, every bit that could be dug in any of these tidewater stations was worth a great deal to the company itself; they ought to have been very glad to get it, to build out over the lowland back of their bulkheads and into their piers.

Q. But even that would involve some transportation——

A. A haul of a few hundred feet.

Q. And so on?

A. Yes.

Q. A great many of these plants you found had no bulkhead next to them that they were using or that apparently belonged to them, didn't you?

A. Not where I noticed a large amount of excavation, except for gas holders.

Q. Well, for whatever it may be?

A. Yes, I say except for gas holders.

Q. But you made no special allowance for that?

A. No, I did not.

Q. Now, you might proceed with these various buildings.

A. Fourteen is the next, retort house No. 4, marked "Exhibits." It should be experimental retort house.

5267 By Mr. BURR:

Q. Does that need to be corrected?

A. Yes.

Q. Instead of Exhibits it should be Experimental?

A. Yes.

Q. What do you mean by Experimental?

A. It is a little retort house with three benches in it which apparently is used for all sorts of experiments and at the present moment has some mysterious arrangement in it not in use. That also is all lumped in one computation at $4,631.12.

By Mr. MATHEWSON:

Q. You did not separate that into its items?

A. No.

Q. I suppose about all the chance you had was to make a general survey and then a general estimate, was it?

A. I visited the cellar of this experimental retort house and examined the foundations to see if there was anything there and found that it was practically abandoned and used as a water closet by the men. Going on down as far as brick fence, Item 22, all the other foundations have been included in the estimate for the buildings, foundations for trestles and that sort of thing, and not separately computed.

Q. That is, you made a lump estimate for the building including the foundations without computing each separately?

A. Yes, without computing each separately, making a lump estimate. In the case of most of these foundations where I learned that they were very heavy indeed, my time being preposterously limited, I made as good an estimate as I could of what was below ground; but always in that case included the walls of the building which supported the building, as well as the foundation for the machinery, although I visited every one of them and looked at them very carefully.

5268 Q. Can you tell me now where and to what extent you allowed for pile foundations in these various plants?

A. Now, let us see. Item 11, retort houses 2 and 3 pile foundations, an allowance of 5 cents per cubic foot for the capacity of the whole building. Item 10, condenser and scrubber house, pile foundation, allowance of 5 cents per cubic foot for the capacity of the whole building.

Item 9, retort house, allowance of five cents per cubic foot for the whole building.

Item 1, valve house, allowance of five cents per cubic foot for pile foundations.

Item 20, coal shed No. 2, allowance of five cents for pile foundations.

Item 31, deodorizer house shed, an allowance of five cents for pile foundations. Those are all I can find on my computation.

Q. Will you give me the basis on which you computed this five cents—per cubic foot, was it?

A. Per cubic foot, yes, sir. The computation of buildings by means of the cubic foot capacity, except where the buildings are very closely of the same general dimensions of building is incorrect and untrustworthy. Taking a building 50 feet long, 50 feet wide, and 25 feet wide, with walls twelve inches thick, and bricklaying at $25 per thousand kiln count, and the roof at 30 cents per square foot, we find the cubic contents of that building to be 18,750 cubic feet, and the cost $1,525, or 8.1 cents per cubic foot. Taking another building 100x30 feet x 25 feet high, with walls 16 inches thick and at prices of brickwork and roof the same, its cubic contents are 75,000 cubic feet and its cost for the plain building as $4,358, or 5.8 cents per cubic foot——

Q. That is on your estimate of cost?

A. Yes. Taking a building 200 feet long by 60 feet wide
5269 by 25 feet high, with walls twenty inches thick, and the cost of brickwork and of roofing being the same as in the previous cases, its cubic contents are 300,000 cubic feet, and its cost is $12,284 or 4.1 cents per cubic foot. This is a simple building with the foundations extending in brick five feet below the surface of the ground, the walls rising twenty feet about the ground and surmounted by a slate roof, and is what might be called a rough type of the retort house, such as you see.

Q. You mean the building which you have supposed in your testimony, or some particular building at this 42d Street plant is of that character?

A. It is of the general type of the retort house, is what I am speaking of.

Q. You have not quite told me yet on what basis you computed the five cents per cubic foot on account of piling. I mean five cents per cubic foot for the entire contents of the building in this particular case?

A. Referring now to what I have just explained, 10 cents is taken instead of 4.1 cents in the case of a retort house with ordinary foundation.

Mr. BURR: That is, you allow ten cents.

The WITNESS: I allow 10 cents in the place of 4.1 cents in a retort house with ordinary foundations. But when you get to pile driving, and I know this from practical experience, there are many factors enter in to make it slow, troublesome and costly, and so I simply added fifty per cent., or five cents per cubic foot for the cost of any building that had to be put up on piles.

Q. How deep did you assume the piles to be, how long?

A. I had but one or two opportunities to learn anything in regard to the nature of the piling there, and on that I based my pile work at from five dollars to $7.50 apiece for piles.

5270 Q. Well, that would be piles of how long?

A. Oh, twenty to twenty-five feet, or thirty, not large piles, just ordinary small piles such as would be driven under a wall.

Q. Now, you found some re-enforced concrete foundations, didn't you, for buildings or apparatus in the various plants of the Consolidated?

A. If I remember rightly at the 65th Street station there was a very elaborate statement of heavy stone wall and of concr-te work, and of interior retaining walls, all of which required a considerable amount of time for computation and for checking out, amounting to a considerable amount of money.

Q. Well, did you find any re-enforced concrete foundations under ground?

A. Pardon me. A re-enforced concrete is a concrete that is braced with wrought iron.

Q. Yes. Well, on your own definition, did you find any re-enforced concrete foundations underground?

A. I did not.

Q. Then, of course, you did not make any allowance for any, not having found them.

A. Not having found them, and it would not make very much difference in either case.

Q. Well, what figure per cubic yard yould you put on re-enforced concrete foundations under ground?

A. About seven dollars per cubic yard plus the cost of any iron that was worked into them, if I could find how much that was.

Q. The whole thing would be eight dollars and something per cubic yard?

A. No, it might be more and it might be less; I really don't know.

Q. How about re-enforced circular concrete tanks underground; didn't you find any such tank or tanks?

A. I did not, but all the difficulty in regard to that is obviated by the fact that I did not vary largely in my figures from the figures given.

5271 Q. No, I am speaking now about the buildings and not the apparatus. Simply the buildings on which you and Mr. Mayer disagreed, and the foundations for building and apparatus which you stated you included in the cost of buildings, did you not?

A. Yes, sir.

Q. Now, what did you allow for concrete floors on the ground six inches thick?

A. They were put down at seven cents per cubic yard.

Q. Seven cents per cubic yard?

A. Per cubic yard laid.

Q. How much would that be per square foot?

A. Well, don't you see, it would be fifty-four square feet; twenty-seven cubic feet multiplied by half, and it would be fifty-four, and seven dollars—did I say seven cents?

Q. Yes?

A. Seven dollars.

Q. That is a different proposition; I thought the other was remarkable. How much would that mean per square foot, if you were simply taking the surface six inches thick? That would be half of a cubic foot, would it not?

A. Fifty-four square feet multiplied by one-half a foot gives you twenty-seven cubic feet, that would be about thirteen cents per square foot area.

Q. Six inches thick?

A. Yes.

Q. What did you allow for reinforced concrete floor with beams and expanded metal, if you found any such?

A. I have just stated to you that I did not discover any such, nor was I told of any.

Q. No, this is another proposition?

A. If I were asked anything of that sort I would require considerable time to calculate it, depending on the span, on the amount of iron used and on the loading which was expected to go on the floor; it is quite an intricate engineering question.

Q. You did find some face bricks selected from common bricks in some of the stations?

5272 A. I recall in one of the offices only. To be frank about the matter, I rather neglected the walls on the outside of the buildings, I was so busy with the apparatus.

Q. Well, you did not make any allowance for face bricks, did you, above the common brick?

A. I did not, no.

Q. Well, what grade would you allow for common bricks laid per thousand?

A. I did allow twenty-five dollars per thousand laid; it is too much it should have been twenty dollars per thousand laid.

Q. Now, can you give me the detail by which you reached the twenty-five dollars per thousand of common brick laid, what did you assume to be the average price for bricks?

A. The average price for bricks now, all hard-burned red, stock bricks of good durable quality would be somewhere between ten and twelve dollars a thousand, perhaps over. A bricklayer laying as he would lay there, would lay somewheres between one thousand and twelve hundred in a day of eight hours, to which he confines himself ordinarily.

Q. Do you think he would under the Union rules in the City of New York? Have you had any experience?

A. Pardon me, before I go any further. Of course, in regard to elaborate buildings like four-story fronts he would lay somewhat less. If he were laying pressed brick or Philadelphia pressed brick, as it is called, he would be held down or would hold himself down to about four hundred bricks a day; but if he were throwing brick into a foundation and slushing up as he went along without pointing on the outside he would be allowed to lay from fifteen hundred to two thousand, perhaps more, during the day.

Q. In New York City?

A. In New York City.

Q. You have not had any bricks laid for you in New
5273 York City recently?

A. I have not, but I have looked up the matter very carefully, and this is authoritative.

Q. I wish it were. How much would you pay a laborer per day for laying bricks at that rate?

A. The actual cost would be for the bricklayer in the neighborhood of——

Q. Per thousand of brick, I mean.

A. For the bricklayer in the neighborhood of five dollars; for the hod carrier, if there was a hod carrier, in the neighborhood of three dollars and fifty cents, and for the day laborer probably in the neighborhood of one dollar and seventy-five cents to two dollars, and the total cost of laying this brick handled in that way, assuming it to be the plain rough common work that is done around gas works, might be about six dollars, somewheres between six dollars and seven dollars per thousand, making eighteen dollars or nineteen dollars a thousand so far.

Q. How much would you allow the labor per thousand?

A. The labor is paid by the day, the hod carrier is paid by the day, and the bricklayer is paid by the day.

Q. Yes, I understand, but we are reducing it now to a thousand?

A. And I said that all three of them together would make the cost of laying one thousand brick somewhere between six dollars and seven dollars a day.

Q. How much would you allow for the bricklayer himself in daily wages?

A. The bricklayer would probably insist on five dollars or five dollars and fifty cents as his absolute right, and the hod carrier would stand out for three dollars*t* and fifty cents, and the common laborer one dollar and seventy-five cents.

,Q. And if a bricklayer laid only eight hundred bricks in laying the wall of a building instead of a thousand or twelve hundred,
5274 that would increase the cost per thousand of brick, of course?

A. Yes, but I am assured that the very, very common kind of work that is required in gas works is allowed to be built much more rapidly, particularly where you are on the ground, and where you throw in and slush up your brick as you go along.

Q. In building gas buildings above the ground bricklayers do not work in that fashion, do they?

A. Well, it is pretty rough work that I have seen about these buildings, these retort houses—they are just struck joints—half-inch joints, too, at that.

Q. Don't you know that every brick is rubbed into position and joints are struck in these gas structures above ground?

A. Haven't I been inspector for that work, with the specifications calling for everything of that sort, and I know exactly what they do do.

Q. Don't you know that it is done in the buildings of the Consolidated Gas Company?

A. I have seen the brickwork and I know just how near it was to being done as the theory calls for. It was very rough work in a good many places.

Q. You found, did you not, that the brick had been rubbed into position and the joints struck in every case above ground?

A. The bricks varied so much in quality in some of the walls, particularly at 21st Street, if I remember rightly, that they worked out for half their depth in the face of the wall.

Q. That was because the mortar may have worked out?

A. The brick was not hard, red stock; it was the commonest kind of brick.

Q. But the laying of the brick is what we are talking about now?

A. Yes. And I allowed six dollars for that.

Q. Didn't you find that those bricks so far as you observed, had been rubbed into place, and a joint struck?

A. I said they were all struck joints.

5275 Q. How much did you allow per thousand for cement?

A. I allowed the balance of the twenty-five dollars, put that as anywhere between eighteen or nineteen dollars and twenty-five dollars.

Q. How much of that would be cement?

A. Well, cement was worth, in those days when that was built——

Q. No, we are talking about *now;* that is what we are discussing.

A. With the exception of the new buildings at 132d Street, I have figured on the actual cost of what is known as cement mortar, which was made by using a lime base, mixing sand in it, and then mixing a half a barrel of cement in just before it was used, and that cost about one dollar.

Q. One dollar per thousand of brick?

A. No, I mean a half barrel of cement.

Q. How much would that be per thousand of brick, according to your theory?

A. The lime, cement and sand would be three or four dollars, according to my figures. I think the mortar in it would be about twenty dollars really, but I allowed twenty-five dollars.

Q. You have got considerably more than twenty dollars if you allowed three or four for cement and sand and mortar already. Now, how much would you allow per thousand of brick for foremen?

A. That was included in the six dollars—six or seven dollars.

Q. How much for timekeeper and hod hoisting?

A. All included in the six dollars or seven dollars.

Q. And the hod hoisting also?

A. All that sort of thing.

Q. How can you include hod-hoisting apparatus and scaffolding in your cost of labor?

A. Because it is put in in making an engineering estimate and because of those reasons instead of sticking to the twenty dollars we simply put it at twenty-five dollars.

5276 Q. That would be material, wouldn't it? The hod-hoisting apparatus and the scaffolding would be material instead of labor, would not it?

A. Oh, no; no; that is simply what might be called day work, that hoisting apparatus and the scaffolding and that sort of thing. Unless a regular contractor has it you lose it.

Q. Did you go into details in your figuring of values of buildings as to the cost of windows, say twelve inch by eighteen inch panes, one-quarter American glass?

A. In the very limited time at my disposal it was totally impossible to do anything of the sort.

Q. How much did you allow for tar and gravel roof, five-ply, having two-inch plank, how much per square foot or square yard, either one?

A. A tar and gravel roof laid on sheeting, it is a good roof too, costs on an average of four cents per square foot.

Q. Four cents?

A. Four cents per square foot; and a tin roof costs on an average of about eight and one-half cents, and a slate roof costs on an average of about ten cents a square foot.

Q. How about slate laid on boards or terra cotta?

A. Ten cents.

Q. Well, I understand that in your estimate, in making your estimate of the value of these buildings you did not go into any of these details in making up your computation, but made a general estimate in the time at your disposal?

A. I had to, yes, in the time I had.

Q. In reference to the foundations, did you take into account the cost of steam pump sheet piling?

A. That was all allowed for in the exceedingly liberal addition of fifty per cent. wherever there was a question of piling in a foundation.

Q. Is that also true as to temporary blocking and shoring?

A. In the case of water works, if you know what I mean
5277 by a hydraulic work, like piling, anything of that sort, I intended in the rapid work which I was forced to do to more than cover it all by the allowance of fifty per cent.

Q. Did that include the permits for the use of the streets which we had to get and pay for, or didn't you know that there was any such?

A. No; I didn't include it.

Q. How did you compute the cubical contents of these various buildings, by taking the dimensions as they were given in the statement furnished by Mr. Mayer?

A. I did.

Q. And did you allow anything for the space taken up by the roofs, if the roofs were not flat—I mean, taken up between the top of the walls and the elevated roof if the roof part was not flat?

A. In some cases, where I recall it, the ceiling was peaked, and the peak was not given, assuming the peak to be one-quarter the span above the level of the side walls, the height was increased by one-eighth the height of the walls in order to get the cubical contents in a liberal way, so as to avoid any possibility of making them too small.

Q. Now, taking the first building at 42nd Street, the valve house and vault, Mr. Mayer, computing in detail, made the cost per cubic foot 31.9 cents for the building, and you make it fifteen cents, or only half as much. Will you state again exactly how you make up that fifteen cents?

A. The very best building in the plant of the Consolidated Gas Company appears to me to be the governor and boiler house of the 132nd Street station. That being the case, and the figures being known to the Consolidated people, as well as to Mr. Mayer, it was proper to assume that the actual cost of that building was somewhere near right, and the cubical contents of an analogous building which was not much too small would be somewhere near right. The
5278 actual cost of that building is given by Mr. Mayer of the Consolidated Gas Company at 26,736, which, divided by the cubical contents, from Mr. Mayer's measurements, gives an average of 13.2 cents per cubic feet of contents. That, then, gave me what might be called the best standard, the highest standard of quality that was in existence in the Consolidated Gas Company, and the computations which I made will show you that the very simplest, plainest buildings were far below that, though in using fifteen cents per cubic foot I felt moderately safe in feeling that I was more than liberal in my dealings with the buildings.

Q. But you say you took ten cents in the case of the 42nd Street building, to which I called attention, and added thereto five cents additional for the foundations of apparatus?

A. Yes, sir; that is where piles came in.

Q. Were there any foundations of apparatus of similar kind and character involved in your 132d Street building?

A. Calling your attention to that, to the five cents additional for pile buildings, included buildings of very great size, of the retort house, and condenser house size, and on the smaller valve house size, and the finish in the case of retort houses, of condenser houses does not exist, while the finish in this new valve and engine house at 132nd Street was exceedingly nice and attractive.

Q. What did you call the finish?

A. The hall, the wainscoting, the tiled brick, the staircases, the cemented floors, the general appearance of this building at 132nd Street.

Q. Now, fifteen cents seems to be the highest rate per thousand cubic feet, reckoned on the cubic capacity, that you have allowed for any building. Isn't it?

A. I think it is.

Q. In any one of the plants?

A. Yes.

Q. No-, don't you know that a great part of the cost of
5279 building an oven—the most difficult and most troublesome part, results from the laying of the foundations; that is, whether it may be rock or may be [illegible] foundation where you have to use piling, or go down a great depth?

A. Certainly. I think that was the reason of my addition.

Q. And are you aware that this 132d Street building, which cost between thirteen cents and fourteen cents, had a foundation comparatively shallow in coarse sand, with no rock on one hand and no piling on the other hand required?

A. Of course I had only the scant examination that was allowed me. It looked like an ordinary foundation, but it was very well finished as compared with the other buildings.

Q But the finish of a building would bear comparatively small relation to the additional cost of foundations if you had to drive seventy or eighty foot piles or excavate a good deal of rock, wouldn't it?

A. Oh, dear, no. The style of finish you see here in New York in some of these buildings would run the cost of these big buildings up to thirty, thirty-five, forty, forty-five or fifty cents a cubic foot.

Q. I understand that is so in office buildings and that sort of thing, but I am referring now to the ordinary gas buildings, such as this 132d Street building. There is no mahogany finish there?

A. Oh, no, but it is a long way the best of the lot.

Q. But if you had pile foundation, or a foundation where excavation of rock was necessary, a similar building would cost very much more than thirteen cents, wouldn't it, if you had to go to the additional expense for this expensive foundation, and assuming also that the 132d Street building had no rock nor piles to deal with, but was a shallow foundation on good soil?

A. Well, with a rock foundation, and a building of that
5280 sort you have a very decided gain in economy, because the rock you blast can be used in building the building and probably would be used both for foundations and building the building, and for that foundation is where the cost runs in.

Q. What did you figure for a similar building at 111th Street station—I mean similar to the 132d Street building, of course—exhaust and engine building at 111th Street? Exhauster house, it is "Item No. 2, buildings, 111th Street"?

A. Item No. 2 Exhauster house and basement, six-inch concrete floor, $18,532.82.

Q. Per cubic foot you allowed?

A. Fifteen cents per cubic foot.

Q. In other words——

A. In other words, I put it on a par with the 132d Street station.

Q. Now, do you not know that at the 111th Street station it was necessary to go down with a broad foundation, something like eighteen feet on one side and produce a much more expensive building on the whole, therefor-, than the 132d Street building?

A. I did not know that, but I was liberal because its finish is not equal to the 132d Street building.

Q. Do you think the difference in the finish could offset going down eighteen feet with a foundation, as against a shallow foundation or an ordinary foundation for the 132d Street property?

A. I could not answer that definitely without a careful study of the plant and quantities.

Q. Those would all be details which it would be necessary to take into consideration and compute upon if you wanted to reach your exact result?

A. Yes.

Q. And I see in each of these cases, that in each one of the plants you reach the value of the buildings by assuming a certain cost per cubic foot, either fifteen cents or ten cents or five cents and multiplying the cubical contents by that. That is the way you reach
5281 your value of the building?

A. Yes.

Q. You do not reach the value of a building by some other process and then divide it by the cubical contents in order to find how much it would be per cubic foot in your computation?

A. I did not, no. I took the outside valuations per cubic foot, to be on the safe side.

Q. How much did you consider that the wages of carpenters are per day in New York City?

A. I don't know.

Q. How much for slaters?

A. I know the cost of slate per square foot.

Q. Slater?

A. I say I know the cost of slating per square foot but not the price of the slaters.

Q. Nor slater's labor?

A. No.

Q. Plumber?

A. No.

Q. Plumber's helper?

A. No.

Q. Painters?

A. I did, but I have forgotten. Mighty little paint around gas works.

Q. Do you know what masons get?

A. About the same as bricklayers.

Q. Well, that would be about how much you think?

A. Somewhere between four dollars and five dollars, according to the locality.

Q. Don't you know that you have to pay nearer six dollars per day to a mason in New York City, or was not that brought to your attention?

A. I have inquired within a very short time and was told that masons and bricklayers kept even.

Q. And haven't you learned that we have to pay laborers about three dollars a day in this kind of work instead of $1.75?

A. Not around gas works.

Q. Is it your idea that the Union permits a man to work in laying stone work at a gas works in New York City at any lower price than laying stonework anywhere else, of the same character?

A. I think you have confused laborers with hodcarriers
5282 and mortar mixers. In some cases the demand is as high as $3.50.

Q. But you have no idea, have you, and you do not mean to suggest, that the Union permits its men to work cheaper per day on the gas company's work than on work for anyone else?

A. The gas work is comparatively rough compared with the many very carefully built buildings——

Q. But the rate of wages per day is the same, according to your information, wherever a Union man works in New York City, for the same character of work?

A. On the same character of work, yes.

Mr. BURR: I think the Doctor might state what he has in mind when he says laborer.

Mr. MATHEWSON: Very good.

By Mr. BURR:

Q. Whom have you in mind when you speak of laborers?

A. I thought Mr. Mathewson had confused laborers, who are men without any skill of any sort or kind, who are lifters and carriers, with mortar mixers and hodcarriers, who are in a limited way skilled men in their own line and they demand good pay and get it.

By Mr. MATHEWSON:

Q. But you do know that a mason—and when I say a mason I mean Union masons in New York, as they are the only kind that we know anything about—and stone layers receive the same wage per day, wherever they are at work laying stone?

A. I am under the impression that those who do labor work, just the roughest kind of work, do not get as well paid as those who do the finest kind of masonry that is done in our buildings here.
5283 I refer to our stone-faced buildings, a very high class of work required in our larger and finer buildings.

Q. Now, what I have asked you in reference to these buildings at 42d Street and your method of computing values and the theories upon which you have proceeded in computing these values of different buildings and structures which you have included in your estimate, cost of buildings, applies to all the stations, doesn't it?

A. It does.

Q. Referring to the 42d Street buildings as a whole, I see your total for buildings, original cost, or actual cost without depreciation is $434,250, if my figuring is correct, against six hundred thousand dollars or such a matter, or more than that sum, for Mr. Mayer—at least, yours is very much lower than his, isn't it?

A. $434,250.34 is the sum total of the structural cost of the buildings, solid walls and uncomputed structures.

Q. Now, I see that in your apparatus at 42d Street and also in computing the value of apparatus at other stations you have put in the value of the different apparatus at round figures like three thousand dollars, valve house, purifier house (p. 5067) $24,000 for purifiers, $12,000. I suppose those round sums are inserted, because it was impossible within the time at your disposal to make more definite estimates, wasn't it?

A. Why, it would be a mere pretense on my part to pretend to the accuracy of a refined estimate in the brief time permitted.

Q. Did you make inquiries from the makers of the various apparatus, that is, engines and so forth, as to what they would sell engines and install them for?

A. I did not, but I have been buying engines for thirty-five years, and there has been rarely a year in which I have not had more or less to do with the purchase of and the sale also of engines, and I have a pretty fair idea of what the stuff was worth when I looked at it.

5284 Q. And your figures were for the delivery of the apparatus at the companies?

A. Yes.

Q. And any difference between your figures and the original cost of Mr. Mayer would be made up perhaps by the expense of setting by the company after delivery, or something of that sort?

A. Something of that sort; but I think in most cases of apparatus my figures were somewhat higher than Mr. Mayer's. I think you will find that with the exception of the gas holders that the general machinery and casting work is exceeded in almost every case.

Q. And, of course, you did not take the trouble in these various items of apparatus to compute the weight, except so far as it may have been stated by Mr. Mayer or appeared from the dimensions?

A. In three or four cases I had more than three or four, I had one of my assistants do some figuring on Mr. Mayer's weight and in every case corroborated them and I dropped them.

By Mr. BURR:

Q. That is, you accepted his figures?

A. I dropped the computation. I did not go any further after that.

By Mr. MATHEWSON:

Q. And you found, too, I judge, that his cost in cents per pound for this apparatus which he used, taken in conjunction with the weight to be the original cost, was proper as far as you could judge?

A. Assuming thin castings, as thin as they could well be made, Mr. Mayer's figures appeared to me to be about right, and I was willing to assume those right straight along. Assuming Rowland's castings or those of the same kind that he used to make there is a pretty big profit in some of them.

5285 Q. Now, when you referred in the 42d Street plant (p. 5064) in your notes on the retort house to certain retorts being fired and certain idle, just what do you mean—that these were not in operation at the time you looked at the plant?

A. That's it, yes.

Q. On what day was this at 42nd Street.

A. Somewhere between the 17th and 31st of December.

Q. It was the date which you have given in your prior testimony as the date of your investigation there?

A. Yes.

Q. Now, you assume at 42nd Street, that forty-three years' depreciation has gone on, upon the theory which you have mentioned, at .85 of one per cent. per annum, a total of 36.5 per cent. for the value, and in getting this forty-three years I assume you subtract 1863, which you gave as the date of the buildings, from the present year, because that leaves just forty-three years?

A. Yes.

Q. Now, as a matter of fact, you don't know how much has been spent in replacement or repair or renewal on those buildings during the period from 1863 down to date, do you?

A. I looked at that apparatus just as sharply as I could, and it was the main thing I feel strong on.

Q. But this is buildings which you are taking this off from——

A. I mean apparatus and buildings—I looked at it all, just as sharply as I could in the limited time I had, and it was pretty much alike; there wasn't much difference in it.

Q. Well, you understand, Professor, that it is in evidence that since 1884 alone there has been expended in renewals, offsetting some amount of depreciation marked off, amounting to $1,227,683.10, and there has been expended for repairs to buildings, amounting to $1,275,749.03, and to apparatus $4,865,362.51, or a total of between $7,000,000 and $8,000,000 since 1884, according to Exhibit 79?

5286 A. That .85 of one per cent. assumes the keeping in perfect repair of both buildings and of the apparatus and the expenditures of all sums necessary for that purpose.

Q. And the same is true as to the other plants where you have pursued the same course and theory?

A. Yes.

Q. Have you any knowledge as to when those buildings all were constructed upon which you base your 1863 estimate?

A. No, sir, except the statistics found in the testimony of Mr.

Mayer, and in many cases a general judgment, or from looking at the buildings sharply to fix if I could in my mind any difference, any discrepancy that might appear in the buildings, as if one had not some different age from another, to see if one was of different age than another.

Q. Now, referring to the 21st Street plant (record, p. 5076), your estimate of the average date on those structures, 1874, was based upon the same considerations as on 42nd Street, wasn't it? That is to say, what you got from Mr. Mayer's testimony plus your own generalizations?

A. In the case of the 21st Street station, reference (referring now to the buildings) to Rowland's inventory called my attention to the fact that many of the buildings used for stove storage, meter repair shop, stove repair shop, stove cleaning room, prepayment meter washroom, and so on, had their foundations, or were in part built anterior to 1884, and that Mr. Mayer's figures of 1890, the date when they were built, probably were not wholly correct, although he was probably informed on that point. I was not informed, because of the fact that everybody who was assigned to act as guide was instructed also to be absolutely a deaf mute.

Q. Well, I do not think that is quite right. I will merely say that, naturally, the officers of the company could not escort you around, and, moreover, there isn't an officer of the
5287 & 5288 company now who probably knows of his own knowledge when each one of those buildings was built, and so that anything your guide might have said would have been simply a speculation, and we were not willing they should speculate.

A. The result was that they would——

Q. They did not know and could not tell?

A. One of them didn't know when he entered the works even.

Mr. MATHEWSON: Well, we knew when you entered them, because he informed me.

It is now four P. M. Mr. Burr is desirous of getting away, and I think, therefore, that we might adjourn until the morning.

At 4:00 P. M. adjourned to January 8th, 1907, at 10:30 A. M.

Last Exhibits:

Complainant's, 270.
State's, 000.
City's, 135.

5289 Circuit Court of the United States, Southern District of New York.

CONSOLIDATED GAS COMPANY OF NEW YORK, Complainant,

vs.

JULIUS M. MAYER, as Attorney General of the State of New York; WILLIAM TRAVERS JEROME, as District Attorney of New York County; FREDERICK E. GUNNISON, JOHN C. DAVIES, and LUCIAN L. SHEDDEN, Constituting the New York State Commission of Gas and Electricity, and THE CITY OF NEW YORK, Defendants.

Before Arthur H. Masten, Special Master.

JANUARY 8TH, 1907.

Met pursuant to adjournment.

Present: The Master, Mr. Mathewson, Mr. Burr, Mr. Kirby, Mr. Page.

5290 Continuation of the cross-examination of WILLIAM D. MARKS.

By Mr. MATHEWSON:

Q. Referring to page 5067 of the record, apparatus of the 42d Street plant, I observe an item numbered 45, reading "added for Dep." That means what?

A. When Mr. Mayer made his inventory he, in several instances, took off 25 or more per cent.; afterwards in his revision he recanted and took off only 5 per cent. This is an error due to the stenographer running down over Mr. Mayer's list and putting in "added for Dep.," and omitting to put anything opposite it, because I had crossed it off.

Q. That represents a case where Mr. Mayer had testified that after a further and more careful inspection, and learning that apparatus had been renewed, or was more recent than he had supposed, he put on a lower figure for depreciation?

A. I presume something of that sort.

Q. And wherever we find a similar memorandum in your testimony, it means the same thing?

A. It means the same thing, only it should have been crossed out. I am responsible entirely for the final recapitulations. There are a number——

Q. It does not mean anything so far as the totals go?

A. It does not mean anything.

Q. I find Item 50, you have one cast box 7 feet 6 inches by 5 feet 6 inches by 9 feet, marked out of use?

A. Marked out of use, yes.

Q. And you give no value to that?

A. And left out.

Q. You omit that from your valuation?

A. Yes.

Q. I see Item 76, page 5068, one bench lathe with no amount following it.

A. I have a very vivid record of that bench lathe. I saw it
5291 in operation and it was the oldest thing I have seen in many a long year.

Q. You left it out then and gave no value to it?

A. Yes, no value to it.

Q. And wherever we find in this testimony items opposite which there appears to be no amount, either under this or the other stations, to put a general question, you have omitted those from the totals which you have given, of course, or they do not go to make up the totals?

A. I have. May I make a correction right here? On page 5096, Item 5, all walls around property, $42,760.17 should be changed to $34,000, as given in the second item on page 5095.

Q. That $42,760.17 ought to be what?

A. Changed to $34,000.

Q. Exactly $34,000?

A. In round figures.

Q. Well, would not that change your total?

A. That would change the total. That is due to the failure of the stenographer to correct as directed after my revision, omitting at that point.

Q. The total would be what, instead of $52,446.97?

A. It would be the difference between those. I will work that out if you like. That would change on page 5096 the totals of $52,-446.97 to $43,740.80.

The MASTER: Does that effect your grand total, or is the $34,000 in the grand total?

A. Not at all. It was simply a neglect of the stenographer to go back and correct it in the itemized details.

Q. Referring to the 21st Street plant, page 5076 of the testimony. where you say Mayer's valuation of sheds as compared with Rowland's valuation, I assume that you took simply the description from Rowland's inventory; you had no further information as to what he appraised in that inventory, had you? I mean, of course, that attached to Senate Document 47 of 1886, which has been of-
5292 fered in evidence here.

The MASTER: Can you not answer that question from memory without taking time to look it up?

The WITNESS: Yes.

The MASTER: He wants to know whether you had any other sources of information besides that schedule.

The WITNESS: None.

Q. When you speak of the number of retorts at 21st Street fired and idle, do you refer to a count which you made at the time you visited the plant?

A. I do.

Q. And when you say that the apparatus or most of the apparatus except the $520,250 worth from which you take no depreciation appeared old and dirty, you could not tell how old the apparatus

was by its simple exterior appearance except by information as to when it was purchased?

A. Except in machinery which in some cases showed a considerable amount of wear.

Q. And as to the apparatus being dirty, it was in operation, was it not mostly?

A. Yes. It did not look to me—take particularly the tar tank and a good deal of the tar filter process, as if it had been recently used; in fact, you take some of the machinery there, the tar filtering machinery did not look as if it had been used for years.

Q. Don't you know that the 21st Street station has shown a large increase in output and has been op-rating to its full capacity? You remember the testimony to that effect?

A. I remember the testimony to that effect, and I also
5293 stated that the water gas apparatus appeared to be in operating condition throughout.

Q. And you know that some oil gas is made there which is sent down to 14th Street and mixed with the coal gas?

A. Yes.

Q. The fact that machinery may not be physically clean in a gas works does not necessarily mean of course that it is rotting away or physically deterioriated, does it?

A. No, not in all cases anyhow.

By Mr. BURR:

Q. What do you mean by saying old and dirty here?

A. I meant that it was old, a good deal of it, and all of it dirty; it was the prominent characteristic of everything around the 21st Street station.

Q. Did you mean by dirty that it detracted from its value as a working plant?

A. I do, it always does. It increases wear and tear.

By Mr. MATHEWSON:

Q. Well, a gas plant in operation is not a place, anyway, to go to in order to keep pure white linen clean, is it?

A. No, but the 99th Street station was exactly the reverse of that.

Q. Well, that makes a good average. Referring now to the 99th Stre-t station, page 5084 of the testimony, you have a note, eleven benches double length retorts, not used. Do you mean that they were not in use when you called on the occasion you stated?

A. Yes.

Q. And where such notes appear as to any station, it refers to the fact that they were not in use at the time you called, as you had testified?

A. That is so.

Q. What about the six vacant arches in the stack—I suppose it means stack instead of stock?

A. Yes. They were vacant. For what reason, of course,
5294 I could not learn, under the instructions of my guide, at the various works.

Q. Well, you did not hear any instructions given to your guide, did you?

A. No, but I saw the result.

By Mr. BURR:

Q. You did not select the guide, Doctor, did you?

A. No.

By Mr. MATHEWSON:

Q. Referring to the 63d Street apparatus, page 5093, you state that the buildings are a lot of tumble-down sheds. Nothing but sheds there?

A. There may have been a brick wall supporting the roofs of some of those tumble down sheds, or tumble down roofs of the tumble-down sheds; everything was in an inchoate condition there, evidently of the most temporary character and fixed up.

Q. And you found that not a very large value was placed on it, did you not?

A. Yes.

Q. As to the depreciation of the holder estimated from appearance, what was the appearance of the holder?

A. About ten per cent. off from new.

Q. Yes, I know, but you say it was depreciated in appearance. What about the appearance of the holder?

A. Well, it had that amount of apparent wear and tear about it, as near as I could judge from the looks of the thing.

Q. It was in opertion, was it not?

A. Yes.

Q. Take next the 55th Street station, page 5905. That station you have corrected now so that the totals or figures on page 5095 conform with those on page 5096?

A. I have, yes.

Q. Going back for a moment to the 21st Street station, was it, you spoke of one of the sheds there being dilapidated?

A. Roof gone.

5295 Q. Roof gone, etc. What shed was that?

A. If I remember rightly, Shed Number 6.

Q. Now, referring to the 111th Street inventory at page 5098, I am unable to find on the following two pages the totals which you incorporate at page 5098 in the summary. I wish you would point them out to me?

A. $20,921.53, items 2 and 3.

Q. That is buildings without depreciation, $20,921.53?

A. Those are items 2 and 3 added together.

Q. That is to say on page 5099?

A. On page 5099.

Q. What about item 4, hoisting engine house?

A. Hoisting engine house $81.90, is out at the end of the wharf and is a wooden building containing an engine——

Q. I know, but that is all right. I think that appears perhaps, but why have not you added that into your total of buildings and

also the scale house $351 and the stable, $8,400, on page 5099, which would make a total of something like $30,000 for buildings instead of $20,291.53?

A. The buildings depreciated on page 5098 are all old buildings. The stable is a very old stable, and the hoisting engine house is a very old wooden shanty.

Q. The $20,921.53 on page 5098 is the sum of items 2 and 3 on page 5099?

A. Yes.

Q. Give me the buildings which make up the $64,290.70 on page 5098 which you put under "Buildings Depreciated."

The MASTER: It is all the rest, is it not, Mr. Mathewson?

The WITNESS: It is intended to be all the rest except the walls and fences.

Q. Where do the walls come in? I see you have put over
5296 on page 5098 walls and fences depreciated $4,010, and you have on page 5099 walls, values, etc., not computed in cubic feet $4,010. That is the same item, is it not?

A. Yes.

Q. Where does the $197.12 come in, as part of the $64,290.70? I refer to the walls, $197.12?

A. You refer to item 16?

Q. Well, it follows, between 16 and 17. Yes, it appears also to be item 16 as well. It looks as though——

The MASTER: It does not balance within $10 either, those two sets of figures.

The WITNESS: This inventory on page 5098, 111th Street, is the correct revised—overhauled work; these detailed inventories on page 5099 were left to the stenographer to be straightened out as marked by me and evidently were not in some cases, as we have already found out.

Q. But it is intended in each case that the summary or recapitulation of inventory for each plant shall actually coincide with the details shown later in reference to that plant?

A. Yes and should coincide.

Q. And if it does not in this case it is simply an error?

A. It is simply a stenographic oversight, that is all; these were made up from my figures.

Q. Well, I think the rest of it I understand there. Let us look at the Inwood station, page 5103. In the recapitulation the first item of $1,373 corresponds within twenty cents with the $1,372.80 in the detail below?

A. Yes.

Q. That is the same item, is it not?

A. The same item.

Q. In reference to apparatus——

A. Four and five.

Q. The next item in the summary is total gas machinery $2,300?

A. Yes.

Q. Where is that below?

A. 2, 3, 4 and 5.

5297 Q. Items 2, 3, 4 and 5, $2,300?

A. $2,300.

Q. You exclude then wholly the holder?

A. As of no value.

Q. As of no value, which cost new $12,000?

A. Yes. That is due to the fact that it has been left there idle, boarded in——

Q. Is not there gas in it?

A. There may or may not be gas in it. You cannot tell. It is down and fastened down practically; the counterweights are taken off of it and are lying on the ground and dismantled.

Q. At any rate you have excluded it entirely?

A. Yes.

Q. The rest is clear I think. What do you mean by the holder being fastened down?

A. The counterweights are taken off of it; it is a very elaborately gotten up and very small holder, having double counterweights for the lower lift and single counterweights for the upper lift and quite elaborately braced columns for the purpose. It is evident that the engineer who designed it meant to make it throw a very light pressure or else that it was originally a very heavy holder, and taking these counterweights off simply set the thing down, you may say, solid. Then around the edge of the tank between the tank and the holder are cut and jammed in at a slant a lot of boards to prevent toads and things from hopping into the tank. It is jammed there.

Q. Well, now, Doctor, let us take page 5108 and page 5109, in which you have made a summary of values, and do a litle figuring on it. You make the total of those figures $31,122,454?

A. Yes.

Q. You take the original cost of land to the six merged companies, that refers to the books of the six companies as you understand?

A. As explained by Marwick, Mitchell & Company.

Q. And the second item is clear, balance of cost of land

5298 transactions. And then we come to abandoned land?

A. Yes.

Q. How do you get the valuation of $317,100 for bulkheads and $875,916.37 for land at 18th Street taken by the City?

A. You will note on page 5108 that I speak of this as a final estimate.

Q. Yes?

A. These are the estimates given to me from the Corporation Counsel's office of the valuation placed upon this land by experts for the City in the litigation at present, I believe, going on between the City and the Consolidated Gas Company.

Q. Well, the point is, those are the estimates of the City or figures given you by the City's counsel?

A. By the Corporation Counsel.

Q. You are not a real estate man yourself and have not made an appraisal?

A. I am not a real estate expert.

Mr. BURR: And the company may recover more than is given here, that is conceded.

Mr. MATHEWSON: Lots of things may happen.

Q. That leaves a net for land of $2,925,251 at that point?

A. Yes.

Q. Now, you add to that your value, after taking out your depreciation, for the plants of the company, including buildings, holdings, yard connections and apparatus, amounting to $9,348,692?

A. Yes.

Q. That is your testimony. Now, when we come to the street mains, you remember that the $7,142,232 was the value of the mains as you computed them upon the mileage which you had deduced from your measurement of the maps?

A. Yes, that is of active mains.

Q. Active mains?

A. Active mains.

Q. And you remember that the 822 miles of mains which Mr. Simpson testified were active or not abandoned, upon your
5299 estimate of value would have been something over $8,000,000 for original installation, a little over $8,000,000?

A. I think it was very close to $8,000,000.

Q. Yes, it was very close, but a trifle over?

A. Yes.

Q. Now, why do you deduct something, that is $1,017,220, from the value which you found for our active mains in obtaining the $6,124,012 of mains which you proceeded to credit us with?

A. Superintendent of Mains Simpson testified that at no time within the last sixteen or seventeen years had anything less than six-inch mains replaced the existing mains, meaning by that inferentially that five-inch mains and below that were obsolete——

Q. Well, but he testified, you remember, that in replacing mains now he would replace, if he had to do so, with larger sizes?

A. Yes.

Q. But he also testified that we had in use still a great number of these small mains and it so appeared. Now, do you think it is fair, when we are actually using those and they are concededly active mains, to deduct $1,017,220 from your previous own valuation of active mains?

A. The doubt in my mind, placing myself in the attitude of a prospective purchaser, an attitude which I believe was what Judge Lacombe desired in any estimate, was whether or no it would be proper to throw out altogether the 2, 3, 4 and 5-inch mains which are actually in use——

Q. In spite of the fact that we are actually using them?

A. They are actually used.

Q. Yes?

A. Or to throw out the difference between the six-inch mains which Mr. Simpson testified was the least size that you put in, and I decided in fairness to the company, instead of throwing out the two, three, four and five-inch mains, that I would throw out only
5300 the difference between six-inch mains of the same length and these smaller sized mains. The——

Q. But as a matter of fact you say that the cost of the two, three, four and five-inch mains would be only $624,435, and you have therefore thrown out in the neighborhood of twice as much as those mains were worth, because those mains would be worth according to your estimate very much less than the difference between those and the six-inch mains of the same mileage?

A. Because in replacing six-inch mains you would have to dig into asphalt pavements, and undoubtedly anybody who purchased these works for the purpose of operating them would end up by doing that in the course of time.

Q. I understand, Doctor, but the effect of this is not only to throw out the value of our six-inch mains, which was $624,435, but actually to throw out $1,017,220 from our active main value as you have computed it, is it not?

A. It is facing the facts as they are.

Q. Well, at any rate we have got at the theory and we will proceed a little further. After you get the structural value of plants, as you call it, by your figuring amounting to $23,460,020 you take the estimate of Thompson and McHale, an average, and add to your land value enough to bring the $2,925,251 which you originally allowed up to the average of Thompson and McHale?

A. Yes.

Q. That is $7,762,434?

A. Yes.

Q. Which makes your total of $31,122,454?

A. Yes, sir.

Q. Now, we have not any working capital here, and you will recall that you took several Massachusetts companies which you said were the nearest you could get in situation to the Consolidated and at page 3777 you said, that on the same basis of working and active capital which they were employing, the Consolidated would
5301 require $6,375,918.52. Will you be good enough to take these figures? If you wish to refer to that page to verify the amount I will present it, but perhaps you remember it?

A. I recall the total working capital.

Q. Now, will you be good enough to add that to the $31,122,454 and say what total that would give?

A. $37,498,372.52.

Q. But this does not include plant enough to produce all the gas which the Consolidated Gas Company sells, and you stated in your direct-testimony that in addition to the Consolidated Company's property in Manhattan, we would have to allow on the basis of two dollars per thousand for additional capacity plant of the value of $5,097,389.56, at page 2353 of your testimony. Now, will you kindly add that to the last previous amount?

A. $42,595,762.08.

Q. Now, if, as a matter of fact, we consider this plant which will produce the three billion or four billion feet which the company sells, but does not make, as located at Astoria, and we find that it costs more than four dollars, according to the testimony, per thousand feet instead of two dollars, and if we take, therefore, the actual cost of the Astoria plant, that would mean an addition of about five

million dollars more? In other words, if four dollars was correct instead of your two dollars, wouldn't it, for additional plant, be just about $5,097,389.56 more as you remember you computed that on the basis of two dollars?

A. Taking your figures, as a matter of computation.

Q. That would be so, would it, if four dollars was correct instead of two dollars?

A. Yes.

Q. So that would be about five million dollars more, because the testimony is that Astoria costs over four dollars instead of two dollars per thousand feet, and that would make a total of how much?

A. $47,595,762.08.

5302 Q. Now, won't you be good enough to add to that this $1,017,220 which you took out on account of active mains, two, three, four and five inch, actually in use?

A. $48,612,982.08.

Q. And if you take the mileage of mains of Mr. Simpson, 822, instead of the mileage which you computed from the measurement of the map, and your valuation of a little over eight million dollars for such 822 miles, assuming the mileage to be correct, that would mean an addition of about nine hundred thousand dollars more on account of mains than your computation for the active mains, and if we added that nine hundred thousand dollars to that last total that would give what?

A. I compute for you $49,512,982.08.

Q. Yes, and we are not quite through yet, Doctor, because we have not yet in this valuation the engineer and superintendence expenses, and the sewering and draining and cutting and filling, and so forth, which the engineers have testified would cost the company ten per cent., and if we assume that that be so, your figures should show it. Ten per cent. would be $1,193,872. Would you favor me by adding that?

A. $50,706,854.08.

Q. But we have not added any interest yet of five per cent., being the average which seemed to meet almost everybody's views, and you testified that that was $656,624, and that added to the last figure would make how much?

A. $51,363,478.08.

Mr. BURR: I think it is very objectionable in having the Doctor act purely as a computor. You might as well argue this in your brief, Mr. Mathewson.

Mr. MATHEWSON: I am practically through. I might say I am through, but it seemed to me that by consecutively taking the Doctor's computation it was quite fair.

5303 A. Acting as your computor, $51,363,478.08.

Q. Now, Doctor, in this little book which you wrote and of which you kindly favored me with a copy, I find that in your estimate of construction of an electric railway, for instance, or similar design, you have not only "preliminary and legal expenses" in there, and "grading and bridging" at a large amount, but you finally, at the end, add ten per cent. for delays and overseeing only; that is, ten

per cent. of the cost of the plant, including in such cost the "preliminary and legal" and the "grading and bridging;" that is correct, isn't it?

A. Yes. That, however, is an estimate in the inception of the construction of a railway. It differs entirely from an inventory in which everything to be inventoried is either in sight or on record.

Q. Oh, I quite appreciate that, Doctor, but if we are going to work to construct a gas plant new, I think you conceded yesterday that the company would have to have engineering, they would have to lay out the plant, they would have to have superintendence, they would have to drain the ground, especially if it was this low ground; they would have to cut and fill, they would have to do some sewering, and they would have to do various other things, which is a charge upon the company beyond what they would pay contractors merely for building the buildings and installing the apparatus; that is right, isn't it?

A. All of which I allowed in my figures.

Q. And I am approaching now from the company's standpoint—but you did not allow in your estimate of figures for cost of apparatus delivered, as you testified, the engineering expenses in getting street permits and in drawing the design for its own plant originally, no part of which would go to any contractor?

A. All of that was allowed for both in the street mains and also in the figures given by me, and liberally allowed for.

5304 Q. But I am talking about the plant itself?

A. About the plant itself.

Q. Didn't you testify yesterday that your estimate of the valuation of these pieces of apparatus was the estimate of the value delivered at the plant? You had not added any part of the engineering expenses of the company as distinguished from the engineering expenses of the contractor?

A. Very possibly. A most liberal allowance was made in the figures which I have put down in the items for the various forms of detached expense, particularly the case of the buildings, where I added fifty per cent. and five cents per cubic foot for pile foundations. It was an overwhelming addition from my point of view, made simply with the object of being fair, and more than was liberal.

By Mr. BURR:

Q. And that is true all through your estimate?

A. That is true all through, from beginning to end, street mains, buildings, apparatus——

By Mr. MATHEWSON:

Q. Will you take one single piece of apparatus? Take, for instance, the engines which have been installed, in your testimony here and in your schedule, and tell me how much of that you allowed for engineering expenses of the company in sewering its plant and grading its plant and designing its works and expense of street permits, and things of that sort?

A. Taking the——

Q. I want you to do this; I want you to point out some specific

item, so that I can test it by the maker of the apparatus and see if that includes this additional expense which the company has to go to, and which the contractor does not receive?

A. Taking the street mains——

Q. No, you are here valuing the plant.

5305 A. We are talking of street permits, if I understood your inquiry.

Q. No, I am simply talking about permits around the buildings while they are constructing the plant, for placing the material on the sidewalks, and so forth. I am confining myself to your testimony respecting valuation of the plant. If you referred to the street permits when saying that you excluded the engineering expenses, why, I have no further questions to ask, if you understood me to mean that?

A. You spoke of street permits?

Q. Yes.

A. For them as well. Do you wish them?

Q. When we construct a plant we have to pile material in the street all about the plant and we have to have permits for that purpose?

A. A mere trifle.

Q. Oh, no, not a trifle at all; a very substantial, as you would know if you erected buildings in New York City. But you referred when you said you had included engineering expenses, street permits, etc., to the mains, rather than to these individual pieces of apparatus?

A. The matters of the street permits to which you are referring certainly included more than ample allowance for them all. With regard to the street permits for piling brick on lots, they have a great abundance of room.

Q. Well, you said you allowed nothing for street permits?

A. I allowed nothing at all. As far as regards the sewering and general work, and particularly the difficulty of sub-aqueous construction, where piling is involved, I regard my allowance as abnormally great, far too great.

Q. Let us eliminate street permits, and I ask you to point out one of these pieces of apparatus, engines, or something else to which you have testified, and tell me how much you were allowed there for engineering expenses of the company, the cost of steam

5306 pumping, sheet piling, water in the boilers, temporary blocking, the sewering and other things which the company does not leave to the contractor, but which the company has to expend itself in laying out and supervising the construction of a plant?

A. I tell you that in those matters the foundation and buildings, and also the machinery——

Q. I am talking of apparatus?

A. And also the apparatus that in order to more than cover it I added fifty per cent. or five cents per cubic foot to every building that had pile foundations.

Q. That is a different proposition, I am not talking about the pile foundations because you would have to pay the contractor to put in

the piles. I am simply talking about the expenses of the company itself; that is, its own engineers for laying out its plant, for supervision, for superintendence, for draining its land, and for various other things which would go into the company's expense, delays, overseeing, etc., which you add ten per cent. for in this particular structure?

A. It is quite possible for the company who has kept its records of this to make those statements if they wish to do so, no mortal man lives who can do more than I have done, just make more than a liberal allowance for any proper extra expense.

Q. That is not the point. Can you point out any piece of apparatus there and tell me how much you allowed there for that engineering as distinguished from the amount which goes to the contractors on that piece of apparatus?

A. I have answered you as fully and completely as it is in the power of any engineer to answer you unless he has access to your books.

Q. Well, I am talking now about your allowance?

A. And I have done it by more than a liberal allowance for space.

5307 Q. Is that the best and final answer you can give?

A. It is.

Mr. MATHEWSON: All right. That is all.

Redirect examination by Mr. BURR:

Q. I notice in your testimony that you have referred to some unused plants or parts of plants, and the consequent unavailability of output. Can you give me a little more in detail what the total summary of that is?

A. In going over these plans I noticed, as I went along, a number of retorts which were out of use in the various buildings and stations. These are out of use in December when it is supposed, if at any time in the year, that the apparatus of the gas company will be in full operation. The following is the estimate of unused gas retorts and the capacity. At the

14th Street station,	retorts	not	used	.....	324
42d Street station	"	"	"	.....	408
44th Street station	"	"	"	.....	60
21st Street station	"	"	"	.....	276
99th Street station	"	"	"	.....	132
111th Street station	"	"	"	.....	242
Total retorts not used				.....	1,442

By Mr. MATHEWSON:

That is the summary of the individual items in your previous tables, isn't it?

A. Yes, these 1,442 retorts, assuming the lowest four hour charge of about two hundred pounds would carbonize twelve hundred pounds of coal a day each or 1,730,400 pounds of coal. This

1,734,400 pounds of coal at five cubic feet of gas would give 8,652,000 cubic feet of gas a day, or assuming two hundred days to the year an annual capacity of 1,730,400,000 cubic feet. This,
5308 assuming the total structural cost to be about two dollars, leaves out of use apparatus to the amount of $3,495,408. I have not included 360 abandoned retorts in the 18th Street station.

Referring to page 5109, Consolidated Gas Company, estimated cost per annual one thousand cubic feet of sales for 1905, and adding 1,730,400,000 cubic feet to 10,419,461,000 cubic feet, it would give when divided into $12,263,943, an average cost per annual thousand of $1.01 for the gas which would be manufactured by the Consolidated Gas Company's own works, and that would result, adding eighty-four cents for the distributing system, in an average cost of $1.85, instead of $2.02 per annual thousand cubic feet of sales. In taking five cubic feet of gas to the pound of coal——

Mr. MATHEWSON: Don't you think you have gone about far enough on this? It seems to me so.

Mr. BURR: I have asked him a question. Let him finish.

Mr. MATHEWSON: I think he has finished.

The MASTER: He is answering no question that I can see. I do not think that it has anything to do with the redirect-examination or anything that we are supposed to be proceeding on now under the order of the Court. This is not as to the value of the plant at all. He is making an oration now of what might be done with the plants he has not valued.

Mr. BURR: I object to the use of the word "oration" and I except to your ruling that he should not proceed, if you rule that way.

The MASTER: I have not ruled that way, Mr. Burr, but Mr. Mathewson draws attention to the fact we are getting pretty wide of the mark, and I think we are. If the Doctor is about
5309 through I suppose there is no objection to his finishing it.

By Mr. BURR:

Q. Have you about concluded?

A. That is about all that is necessary.

Q. I understood you to say yesterday that you knew the cost of slating, but you did not know the price of slaters. What did you quite mean by that?

Mr. MATHEWSON: I merely asked yesterday whether he knew and he said he did not. Now I suggest it is not proper to go and look up afterwards and be able to tell to-day what the cost of slaters is. I asked him in reference to his estimate yesterday, the basis upon which he made that, and he did not know.

The WITNESS: I could not recall at the moment the slaters' daily wages. It appears to be about forty cents per hour with a helper at twenty cents per hour (page 525 of *Gillette's Handbook of Gas Data*). The cost of a square foot of slate roof appears to be ten cents from the same authority.

Q. Will you be good enough to tell the Master a little more in

detail what method you pursued in arriving at the unit of gas in reference to these various buildings and apparatus?

A. The statement that the buildings of different sizes have a uniform cost per cubic foot is radical and fundamentally wrong.

Mr. MATHEWSON: If you will permit me to interrupt, the witness stated in detail exactly that yesterday, Mr. Burr, and began with exactly the same words, and then went on to say that he took
5310 the 132d Street building as typical and then proceeded to use that as a sort of a unit for the others.

Mr. BURR: I agree with you. He may start from the same point, but I asked him to elaborate a little.

The MASTER: If that is objected to I will sustain it. I do not like that kind of redirect-examination, Mr. Burr. It gives a witness too much latitude. If you have anything you want to bring out, ask the specific question, but if you ask him to explain to me a little further, he might go along for an hour and the other side have no redress. The complainant is entitled to have these questions put in a legal form. If you want anything brought out to strengthen this witness's testimony on his redirect-examination, ask him the questions, but it is not fair for the other side if they object for you to give the witnes- a question and have him run through a discourse lasting ten or fifteen minutes at a time.

Mr. BURR: It understood I was in a court of equity, and this gentleman had undertaken to explain why he made a certain allowance and arrived at a certain figure as a unit of cost.

The MASTER: I shall have to hold you down to questions.

Mr. BURR: Mr. Mathewson cross-examined with regard to it, and I was getting for your benefit a little more of the detail. If you do not desire it, I won't ask him further.

The MASTER: I will take my chances on such questions as you ask him, rather than give him the discretion in the matter, a discretion that few witnesses can exercise properly, so far as my experience goes.

Mr. BURR: Very well. I take an exception.

5311 By Mr. MATHEWSON:

Q. Referring to these retorts——

Mr. BURR: I object to that. I am excluded from asking anything, and now you begin.

Mr. MATHEWSON: I am going to ask as to the retorts—a matter you brought out on redirect, when he told of the retorts not in use, how many per thousand, how much money, and all that.

Q. You understand, do you not, Mr. Marks, that your totals of output per annum for these retorts which you found not in use, and your estimates of values of plant, etc., were based upon these retorts being out of use during the entire year, and no gas being made in them during the entire year? In other words, your computation of the total amount of gas was possibly only assuming that they produced no gas during the year?

A. No. It was based upon another view than this, at a period of maximum demand during the year.

Q. Well, but they were out of use, in other words, practically for the entire year? You might just as well not have them, according to your computation?

A. If you cannot use them at the time of the maximum demand you might just as well not have them.

Q. Don't you know you have to put retorts out of use for scurfing constantly?

A. Yes.

Q. And even in the time of great production you have to put some out of use, and the more gas you produce the more scurfing is required?

A. That is all allowed for, you know, in the two hundred days instead of three hundred and sixty-five.

Q. Well, that is true, isn't it?

A. Yes.

Q. So that, even in the period of greatest production you do not continuously have them working, or have every retort working, but some necessarily are out of condition for scurfing from time to

5312 time, isn't that so?

A. With an able engineer, there are mighty few in December that are out of use for scurfing. Things are fixed.

Q. How about from November to January, when your use of gas is great? Isn't it necessary to put retorts out of use for scurfing in well-managed gas plants during that period at all?

A. A few, a very few, possibly.

Q. What percentage?

A. Perhaps a fraction of one per cent. Everything is kept going full tilt.

Q. Except a fraction of one per cent.?

A. If you are posted on your job.

Q. (Question repeated.)

A. Yes; in the month of December.

Q. Do you know whether a shortage of gas coal has existed within the last thirty or sixty days which has affected the operation of retorts abnormally?

A. It would not affect the existing conditions of retorts if it did exist.

Q. I am asking you about the operation of retorts, *there* being out of use or not out of use for a few days at a time, that would, would it not, so far as coal gas plants are concerned?

A. Not at all. In a well-managed company a good manager would have his stores of coal piled up sky-high by November.

Q. Do you know of any gas company in this country which did have its coal stored up sky-high at the time of the coal strike in 1902 and 1903? And don't you know that every company practically in the country that amounted to anything had to scrape for coal, and pay almost any price for it?

Mr. BURR: Objected to as incompetent and irrelevant, and it embraces two or three questions; it is indefinite.

Question allowed. Exception.

A. It is too indefinite to answer. There are all kinds
5313 of managers, and they were having all kinds of times then.

Q. I am asking about all kinds, because I am referring to the plants in general. And you cannot answer it?

A. To plants in general?

Q. Yes?

A. No.

By Mr. BURR:

Q. What do you mean by the two hundred days that you spoke of in relation to these gas plants?

A. There are three hundred and sixty-five days in the year, but it is necessary for the purpose of scurfing, repairing, taking out retorts, renewing them, and for all the various breakdowns and troubles that occur in a gas works, to make an allowance. This two hundred days a year is not a theory; it is a condition which has been found by long use, by experience in gas works.

Mr. MATHEWSON: That is conceded. Every witness has said that.

The WITNESS (Continuing): And that, therefore, when you find the daily capacity of the works, we will say, to be a million, its annual capacity would be two hundred million, and not as some folks would think, three hundred and sixty-five million cubic feet.

Q. So you have made allowance in your figures for this scurfing that Mr. Mathewson has spoken of?

A. For every kind of catastrophe and trouble and cleaning and fixing and alterations that is ordinarily known to occur in gas works.

Mr. MATHEWSON: It is not a question of allowance for that.

Mr. BURR: That is all. Now, Mr. Mathewson, have you finally arrived at a conclusion as to those two letters I handed to you?

5314 M-. MATHEWSON: Yes. I shall not object to their going on the record in view of the broad way in which the case has been treated by the Master and the Court, assuming you won't object to similarly good information on our part.

Mr. BURR: I am not certain whether I offered this in evidence before or not. It is the so-called "Remsen Bill." I so offer it now.

Mr. MATHEWSON: It is not claimed that this bill ever became a law or affects the situation. It is objected to as incompetent, immaterial and irrelevant.

The MASTER: I will exclude it.

Mr. BURR: Exception.

The MASTER: It may be marked for identification.

Marked for identification City's Exhibit 136.

Mr. BURR: I want to offer in evidence the compilations of Dr. Marks with regard to the inventory, being the sheets marked heretofore City's Exhibits for identification 125 to 135, both inclusive.

The MASTER: Those are what, the details?

Mr. BURR: Yes.

Mr. MATHEWSON: I object to this, Mr. Master. It has not been offered in evidence so that I might have cross-examined upon it.

Mr. BURR: I beg your pardon. You have been cross-examining, since you had him under cross-examination, from those sheets that I have already handed you.

Mr. MATHEWSON: No. Secondly, the sheet contains numbers of things which are not in his own testimony; for instance, "Rowland's actual cost in 1884," which may or may not purport to be something which he has taken from the schedules here in evidence, and which I question very seriously, and I might have to go into this
5315 in detail. Here is "Mayer's cost." I don't know whether that is so or not, whether that is the original cost of depreciation. It appears to be original and the following is depreciation. I don't know that I have any very serious objection to this thing if it is to simply cover Mr. Mayer's own details. Or if it is to take in Mr. Mayer as well, which is in testimony here, but as to the summarizing of what is supposed to be Rowland's valuations as though they were parallel with these valuations of Mr. Mayer and Mr. Marks, whereas they are not at all, but the buildings have been changed and Rowland did not include the foundations of apparatus with his buildings and other things, it is not proper and it is entirely misleading.

The MASTER: I do not see that it can come in here, not having any evidentiary force. That is, Mr. Marks and Mr. Mayer have been here subject to cross-examination, and Mr. Rowland has not.

Mr. BURR: You understand the purpose of that elaborate series of schedules is for the purpose of informing you by comparison as to the various valuations that have been placed upon the same identical things from 1884. Dr. Marks is still here, and if you doubt the correctness of his figures as to what he assumes and states there to be the Rowland valuation, he is here to be cross-examined. If you doubt your own witness, Mr. Mayer, as to the correctness of the figures placed by Mr. Marks in that inventory, he is here to be examined as to that. You know the figures he has given there which Mr. Mayer has presented are absolutely correct. You have yourself offered in evidence a different part of this inventory, the
5316 Rowland inventory, and he has taken from this inventory now in evidence the figures or his values.

Mr. MATHEWSON: He has not, and you have not proved and cannot prove that the buildings Rowland appraised in 1884 are in the same condition to-day that they were then, because there has been something like eight million dollars in repairs and replacements on the buildings since 1884.

Mr. BURR: We will leave you to prove that.

Mr. MATHEWSON: Secondly, what Rowland has included in his appraisal of buildings, whether he included foundations of apparatus or not, is quite another proposition, and they were both included by Mr. Mayer and Mr. Marks. You offered these sheets to me the other day, saying they would be of assistance, and I said they would be and they might shorten my examination, and they have been used simply for that purpose.

Mr. BURR: And you have shortened it?

Mr. MATHEWSON: They have avoided a lengthy cross-examination probably, and I certainly object to any testimony of this witness

which would be merely taken in as Rowland's valuation as compared with the valuations of buildings which he has seen to-day.

The MASTER: You can hand that in in the form of a brief. I should imagine it might be of some assistance, but I do not see that it is evidence, Mr. Burr. I think it is well enough off as it is, marked for identification.

Mr. MATHEWSON: This shows the cost per cubic foot, which Mr. Marks has assumed in reference to each one of these buildings, and the corresponding value of the buildings, multiplying the cost per cubic foot, assumed by the cubical contents which he has figured out.

5317 Mr. BURR: The valuation Mr. Rowland placed upon all these various plants and buildings, as I already stated, is in evidence now. The method by which Dr. Marks arrived at his valuation is shown in elaboration here, and more in detail than in the inventories that are already part of his evidence.

Mr. MATHEWSON: I am not going to object if you want to offer the details here of Dr. Marks' estimate of the valuation of these different buildings, which appear in the sheets which you handed me, but I shall object distinctly to your coupling the Rowland valuation with that save they were valuing exactly the same thing at the same time.

Mr. BURR: I will accept that offer. There is no objection then to that part of the inventory which shows Dr. Marks' valuation and the details of his valuation. The only objection is to coupling with that the Rowland valuation and, as I have already stated to the Master, Rowland's valuation and inventory is already in evidence here so for your own assistance and guidance and aid, I insist that they both should be received at the same time.

Mr. MATHEWSON: You mean Rowland's?

Mr. BURR: Yes.

Mr. MATHEWSON: If Mr. Rowland had been here and seen these buildings at this time as they now exist and had put a valuation on them, I would not for a moment object to your putting his valuation in one column and another witness's in the next column, for comparison, but you are not comparing the same things.

Mr. BURR: Why did you introduce that appraisal at all, then?

5318 Mr. MATHEWSON: Simply to show the value of the property and how the stock was issued at the organization of the company, as we were by law required to do.

Mr. BURR: Has it no other bearing or effect upon this case?

Mr. MATHEWSON: I won't say that. That was the primary object for which I have offered it. You think it has various objects, you so argued it?

Mr. BURR: Still I insist in offering those schedules in evidence.

The MASTER: Where in the record was the Rowland valuation?

Mr. BURR: The buildings are still existing, they are of the same dimensions as Rowland gave, and we would be entitled to show, if you were putting this in evidence for the purpose of justifying your capitalization in 1884, that those buildings no longer existed, if they did not exist, wouldn't we? Mr. Mayer has given the dimensions of all these buildings, they are still in existence and we have

taken them just as given by Mr. Rowland in 1884 to Mr. Mayer in 1906. Dr. Marks is here ready to be cross-examined as to whether he has with accuracy given the valuation given by Rowland in 1884.

Mr. MATHEWSON: It is not necessary to cross-examine him. They are in evidence and you can do so if you choose in your brief.

Mr. BURR: You can.

Mr. MATHEWSON: No, we do not have to from your exhibit.

Mr. BURR: It is not my exhibit.

Mr. MATHEWSON: You are trying to make it such. It is one you are putting in here now.

Mr. BURR: I didn't have the pleasure of knowing Mr. Rowland.

The MASTER: Where is the so-called Rowland inventory in the record?

5319 Mr. BURR: Starting at page 179 of the Exhibit Book.

The MASTER: Well, I will take it, Mr. Mathewson, in view of what took place in regard to these other Exhibits 70 and 79; and give you an exception.

Received in evidence as City's Exhibits 125 to 135, respectively, and so marked.

Mr. BURR: I also offer in evidence the papers that have been previously marked for identification, City's Exhibits 103 to 120, both inclusive, being the schedules of mains as made up by Dr. Marks from the maps of the Consolidated Gas Company.

Mr. MATHEWSON: Those details of mains.

The MASTER: Didn't we argue that all out at great length?

Mr. BURR: No, we had no discussion with regard to them at all, because I simply had them marked for identification.

Mr. MATHEWSON: I think it was understood the summaries should go in, and not worth while to spread that immense detail on the record.

Mr. BURR: Well, I am putting it in and offer it as part of my case for the defendants in this action.

The MASTER: Is there any objection?

Mr. MATHEWSON: No, if the Master thinks it is a proper part of the case. I think it is utterly useless for the purposes of general evidence.

Mr. BURR: That may be in Mr. Mathewson's opinion, but it does not follow that it will be eventually useless.

Mr. MATHEWSON: I think you will find it will be worse than useless.

Received in evidence as City's Exhibits 103 to 120, respectively, and so marked.

5320 HENRY H. EDGERTON recalled for examination.

Cross-examination by Mr. MATHEWSON:

Q. Have you ever constructed any buildings in the City of New York?

A. No, sir.

Q. Have you ever done any excavating work or had any control

of any excavating work or foundation building in the City of New York?

A. No, sir.

Q. Have you ever constructed a gas plant in the City of New York?

A. I advised in regard to the construction in the early days——

Q. Yes, the Mutual, you have testified to that?

A. Yes.

Q. But have you ever constructed a gas plant in the City of New York except so far as you advised as to the Mutual in the 70's?

A. No, sir.

Q. Have you ever built any structures in the City of New York?

A. No.

Q. Have you ever employed labor in the City of New York for construction purposes?

A. No, sir.

Q. Or for manufacturing purposes?

A. No. I have taken laborers from New York, that is, got gas men from here and employed them elsewhere.

Q. Now, you say that you have inspected all the plants of the company?

A. Yes.

Q. Will you tell me when you went to the 14th Street plant, when you entered it and how long you spent there and when you left?

A. I don't remember the exact date it was when I first got their permission to go in, and I went there I think three days in succession and spent probably four hours a day.

Q. That was the 14th Street plant?

A. Yes.

Q. That was the only plant that you had examined up to the time of the recess taken on the 10th of December, wasn't it?

A. I think so.

Q. Now, what was the next plant that you examined after,
5321 I mean the plant after the first one, was it 42d Street?

A. I think 42d Street.

Q. Now will you tell me what day you went to 42d Street and what hour you went to the plant and when you left?

A. I can't tell the exact date without referring to some suggestions or memorandum that I haven't at hand. Possibly I went there an hour of the day and spent some time in getting in touch with it. I think the superintendent was out and I had to wait till he came back.

Q. You entered the plant on January 3d at about ten and remained till half-past ten, didn't you?

A. Oh, that was just merely to measure some thickness of some purifier metal and various others—to examine the docks. I had been there three times previous to that.

Q. Then you give me the date and the time you spent each time?

A. I think I spent about three hours.

Q. Can you give me the date?

A. No, I don't remember the date. I visited so many plants that I can't tell the exact dates of each. I spent probably four hours on

my first visit to the 42d Street plant and possibly three or four hours on the second visit and then on the third I was there a couple of hours and in January I was there a short time just to check off things I had overlooked.

Q. About half an hour?

A. About half an hour. That was to measure the thickness of iron and see the condition of the docks again.

Q. Now, as to the 99th Street plant, you went there on Sunday, December 23d, didn't you, in the morning?

A. Yes. I went there. I don't remember the exact date. It was Sunday.

Q. Sunday, December 23d?

A. Yes.

Q. You went in the morning and remained till about half past twelve, did you not?

5322 A. I don't remember the exact time. I went from there to the——

Q. Wasn't that about the time you were there?

A. I wasn't there over two hours, I shouldn't suppose.

Q. And then you went to the 132d Street station, did you not, and you spent about two hours at the 132d Street station on the same day?

A. I didn't go to the 132d Street on that day.

Q. When did you?

A. I went to 132d Street several times and I cannot remember the exact dates.

Q. It was January 3d, I think, that you went to 132d Street, wasn't it, and remained from about twelve-thirty to two-thirty?

A. I think about that time.

Q. Now, on January 3d you also went to the 111th Street station, did you not, about two-thirty and remained how long?

A. Long enough to measuse up the pressure on the gas holders, that was my object in visiting those stations.

Q. Well, how long did that take, half an hour?

A. I don't suppose it took over an hour to measure the gas holders for pressures where I was facilitated at all.

Q. Now, the 63d Street station you visited on January 1st, did you not?

A. I don't remember the date I visited it. I took the pressure of the gas holders and looked around.

Q. How long were you there?

A. I don't think I was there over an hour. It was in the evening.

Q. The 65th Street station you also visited on January 2d, did you not, from about quarter of three till quarter past five?

A. 65th Street I think I visited two, possibly three times. I was there taking a count of the iron work and taking some photographs of stations and holders and not having a gas fitter along to do

5323 some of the alterations required to take the pressures on the holders I had to visit it again. I made two visits to 65th Street.

Q. You visited it twice to take the pressure on the holders?

A. Yes, sir. I also was there to take a look at it before.

Q. Did you go inside before?

A. No, I didn't go inside; I went with a view of seeing what the state of the gas holders was, whether they were in use.

Q. How long were you inside the works altogether—two hours?

A. Probably five hours altogether, on both occasions.

Q. On all occasions?

A. Taking it altogether, I was there long enough to see all that I wanted.

Q. Now, as to 63rd Street, you visited the 63rd Street station on January 1st, did you not?

A. I think possibly, although I don't think that was the date. I measured the pressure on the holders; I think that was subsequently.

Q. How long were you inside the 63rd Street station?

A. Probably an hour and a half.

Q. All told?

A. Yes.

Q. Now, as to the 21st Street station, you went there, did you not, on December 23rd, about eleven o'clock, first?

A. I don't remember the date. I think it was likely about that date.

Q. And you remained until about two o'clock, did you not, on the day that you went?

A. I think that was about two hours, or two and one-half hours, going through that station.

Q. Then you called again at 21st Street on the first day of January, didn't you?

A. I called again and spent two or three hours there.

Q. And all that covers your inspection of the 21st Street station?

A. I think I was there once more.

Q. Well, was it before or after?

A. I think I made three visits there; I won't be sure about that, but I had to make several visits, you know, in order to get the gas holders.

5324 Q. In order to get the pressure?

A. Yes.

Q. How long were you there on the third occasion, if you did go a third time, an hour?

A. I am not positive about it. I think the two occasions embraced about all the inspection I gave to 21st Street personally.

Q. How long were you there on the second occasion? On the first you were there about two and one-haf hours, you say?

A. Yes.

Q. And on the second occasion how long were you there in that station?

A. I had two gentlemen with me the first occasion. I think we went to 21st Street, and one on the secondoccasion.

Q. I know, but that is not the queston. How long were you there on the second occasion?

A. I think between two and three hour.

Q. On the second occasion?

A. Yes. Possibly that.

Q. Now, respecting the 44th Street station, you went there first, did you not, on December 19th?

A. The first station I visited after 42nd Street was 44th Street.

Q. That was December 19th, wasn't it?

A. I have forgotten the date. I did not put those down. I didn't have any idea there was any importance in what date I went there.

Q. I do not care particularly as to the date. I am merely getting the time, whether it was December 19th or December 20th. You remained there for what period? You left about half-past one, didn't you, and when did you arrive?

A. On the first occasion I went there to measure the holders and make some measurements around the place, and I don't think I got those—I visited it again, taking a few of other parties and measuring the holders. I spent quite a little time in 99th Street, six or eight hours altogether.

Q. Did you go more than twice?

5325 A. I think possibly I did. I don't think I got all the measurements I wanted first.

Q. Isn't it a fact you went December 19th and remained until about half-past one o'clock P. M., going in the forenoon some time about eleven o'clock?

A. I wasn't there, not at the station, the first day.

Q. And the second day, didn't you arrive about twenty minutes of twelve and leave about half-past one?

A. I didn't take note of the time.

Q. Well, about that, wasn't it?

A. Possibly. I got through.

Q. Now, take the 18th Street plant. You visited that, didn't you, on December 20th, or about that?

A. Somewhere along there.

Q. And you arrived there, did you not, about half-past two in the afternoon?

A. It was in the afternoon. I stayed there till two, I suppose. I suppose I spent three hours around the 18th Street station.

Q. Did you go into the Inwood station, inside that station?

A. No, sir.

Q. 132nd Street station?

A. Yes, sir.

Q. How long did you spend there in that station?

A. Possibly three hours.

Q. I think I asked you about that, and you said it was possibly from half-past twelve to half-past two. Now, does this cover the time you spent in the various stations of the Consolidated Gas Company?

A. Oh, no. I have been in those works from time to time ever since 1873 or 1872.

Q. I refer to going there for the purposes of the testimony here.

A. This is for this examination, to see what was there, yes, sir. That comprised the time which I used for looking over and comparing these inventories.

Q. And to see the condition of things now?
A. Yes.
Q. You never made an examination for the purpose of testifying so far as the Consolidated Gas Company plants were con-
5326 cerned before, did you?
A. No, sir, not for the purpose of testifying. I have visited them one hundred times, though.

At 1:05 P. M. a recess for lunch was declared till 2:20 P. M.

After Recess.

HENRY H. EDGERTON resumed.

By Mr. MATHEWSON:

Q. Which plants of the Consolidated Company were you inside of within the past ten years, before the beginning of this suit?
A. I think I have been in most all of them.
Q. Well, name them?
A. I don't—that is not the holder stations, but the works.
Q. Well, 14th Street?
A. Yes, I have been in 14th Street.
Q. 21st Street?
A. I don't remember 21st Street—yes, within ten years I have been in the 21st Street station.
Q. Within five years?
A. I don't think I have within five years, no sir.
Q. 42d Street?
A. Yes, I have been in 42d Street within ten years.
Q. Within five?
A. No, sir; I don't think I have.
Q. 44th Street?
A. It may possibly be ten years ago; I know they were using the Tessa de Moto process at the time I was there last.
Q. 99th Street?
A. I have not been in 99th Street since Balmore was there years ago—no, that was the Harlem. I have not been in there, no, sir, for years.
5327 Q. And the holder station you say you have not been in before the suit?
A. No.
Q. But in these visits years ago to some of the manufacturing stations you did not go for the purpose of making an engineering inventory?
A. No, sir; I was just looking at their apparatus and seeing what they were doing and accomplishing and so on.
Q. In a general way?
A. Yes, sir.
Q. Now, you say you tested some measurements and in some instances you found Mr. Mayer's measurements did not coincide with yours. Taking them altogether was there any substantial difference?
A. No, I don't remember any. I think there was in the width

of a condenser in one place and some others, which were immaterial. I did not check off, however, only those that I judged from my eye to be different from the measurement.

Q. And when you give your view of the cost of a coal gas plant at $250 to $270 per thousand daily capacity and for a water gas plant, $125 to $130, and an oil and water gas plant, 50-candle power, at $100 per thousand, what do you include in the word plant in those totals?

A. Everything.

Q. Do you mean land?

A. No, sir; not land; everything that is in the shape of construction.

Q. Do you mean manufacturing plants, holders, connections and apparatus?

A. And apparatus throughout.

Q. For the manufacturing portions of the plant?

A. Yes, sir, and storage.

Q. How much holder capacity do you allow as related to the generating capacity in your estimate?

A. The holder capacity I predicated generally upon the maximum day's output?

Q. Did you allow holder's capacity equal to the maximum output?

A. Not in this case.

Q. What did you allow?

A. I allowed 45/67ths.

5328 Q. In both coal and water gas?

A. Yes. I cut it down for this particular case for the capacity as I found it, that is the holder capacity relative to the manufacturing capacity.

Q. That is lower than the customary capacity in a coal-gas plant, is it not?

A. Yes, sir.

Q. About one day's holder capacity for a coal-gas plant is the rule, is it not?

A. That is the rule, maximum.

Q. And what about water gas?

A. Water gas could be shaved closer on account of the great rapidity with which it can be generated; but at the same time I allowed a maximum day in that case.

Q. 45/67ths?

A. 45/67ths, and I took 67,000,000 as the maximum output.

Q. And 45,000,000 as the holder capacity?

A. And 45,000,000 as the holder capacity.

Q. How about the oil and water gas, the same thing?

A. Well, the oil and water gas capacity is based upon 22 candles, that is a 22-candle gas. If I should make 50-candle gas for enriching purposes I should prorate it to the 22 candles.

Q. Now, you were examined somewhat at length in reference to the 14th Street plant when you were on the stand before, were you not, Mr. Edgerton?

A. Yes, sir.

Q. And does the schedule which you now present in relation to the 14th Street plant here duplicate the figures which you gave on your previous examination?

A. I believe so, with the exception that I did not get in the holders and some of the plants; I believe the purifier boxes were left out.

Q. And they have been included in your present estimate?

A. Yes, sir; I think they are included: they are intended to be.

Q. You show in your recapitulation of the 14th Street plant $498,806 for the value of the apparatus and contents as
5329 against $578,940 by Mr. Mayer or about $80,000 less for you. Was this estimate of Mr. Mayer the estimate without depreciation, I mean without deduction of depreciation?

A. I believe it was—no, I believe his estimate included depreciation.

Q. That is depreciation deducted?

A. Yes, sir.

Mr. KIRBY: But did not include addition for——

Q. But you deducted very much more depreciation than he did, did you?

A. I think my depreciation is somewhat larger than his, yes, sir.

Q. Is not the chief difference between your figures and his as to value of apparatus at 14th Street the difference in your allowance for depreciation? In other words, the original cost new does not differ greatly, does it as between your figures and Mr. Mayer's for apparatus at 14th Street?

A. I do not think it differs greatly. I cannot——

Q. Have you the totals figured up of the value of buildings, apparatus, yard connections and holders at these various stations reproduced new without depreciation so that we can compare that total with Mr. Mayer's?

A. No, I think only the value of apparatus with depreciation is carried into the recapitulations.

Q. I see that in your schedules of the various plants throughout in many places you say "value as per Mayer," and then carry into the second column of these schedules the depreciated value which he gave.

A. No, I carried out my own figure of depreciation.

Q. But in many cases you will observe you say "Mackenzie Exhauster at 14th Street, page 10, as per Mayer $3,050." That is the depreciation value given by Mr. Mayer, is it not?

A. Yes, sir.

5330 Q. And in such cases as that, if we were to determine the original cost, we would fill in in the first column where you have filled in nothing, Mr. Mayer's value new undepreciated?

A. That would be correct. I think his depreciation value on those was very slight, however.

Q. And where you give a depreciation value of a piece of apparatus not according to Mr. Mayer, and yet have nothing in the first column which represents original cost, you then would put in the first column the same value as you put in the depreciated value column, would you not?

A. I don't know as I have any such, Mr. Mathewson.

Q. I think perhaps there may be one or two there, probably insignificant, but if there are any, that would probably be right, would it not?

A. I think so. I do not——

Q. I think I observed one or two, but I think you probably left out the words "per Mayer" in that particular instance.

A. It is possible, because I have not checked this off very thoroughly. I have still to make a few corrections here. I have a tabular statement of some of them, but I have not had an opportunity to examine it minutely enough to check off all the errors.

Q. Take the 14th Street plant yard connections on page 2 of the summary, it seems to be; it would be page 15 of the 14th Street plant if the pages did not stop at 12——

The MASTER: I suggest you make as little reference to these pages as you can, because I understand that that is all to be printed, and if it goes in the minutes it will be confusing.

Mr. MATHEWSON: All the pages I have referred to so far are the typewritten schedule that I have, and not the printed schedule.

Mr. KIRBY: I might state that these pages could be fol-
5331 lowed in the printing, because the buildings, the apparatus and the yard connections of each station are all numbered, commencing 1, 2, 3 and so on.

Mr. MATHEWSON: I will simply then refer to the recapitulation of the connection at the 14th Street station.

Q. You have valued them at only $25,500, whereas Mr. Mayer's value is $146,895, which Mr. Marks says he considers correct and has adopted. Now, do I understand that your $25,500 is based on your consideration of the capacity of the plant and the connections which you would usually find in a plant of such capacity?

A. That is based upon a factor which is the result of the aggregation of the experience of a number of gas men in regard to the value per unit of output.

Q. I am talking about you, so far as you are concerned; do not bring in any other gas men, because we cannot examine them. That is based upon an estimate by you based upon the capacity of the plant, then?

A. Yes, sir.

Q. And it is not based on any particular mileage of connections or individual consideration of the different items in the connections, is it?

A. Well, in looking around the plants, I had no reason, unless there was a duplication of pipes, to consider that the ordinary allowance for the proportion of valves and connections would be too small.

Q. No, but if you take Mr. Mayer's schedule showing the pipes and size of valves that exist, etc., and the number of feet as shown in his schedule, it certainly would amount, if figured up, to more than $25,500, to reproduce, would it not?

A. Certainly. I took that to be, however, a case that happens in

many plants, that as they grow there is a duplication of parts.
5332 It frequently happens that as a plant grows and connections are enlarged that there is a certain amount of duplication.

Q. That is almost necessarily the case, is it not, as a plant grows and is enlarged from time to time?

A. They put in larger pipes, and the smaller pipes go out of use and it does not pay to rip them out, the foundations, etc.

Q. And you took that into consideration instead of the pipes in Mr. Mayer's schedule, and the connections?

A. Yes, I did not see how such a very large amount of pipe could be used to connect the apparatus, no.

Q. Did you include all the tar and drain pipes and steam pipes and water pipes?

A. Yes, that allowance includes all these tar and drain pipes, that is such as are used in connection with gas; not for sewage purposes.

Q. But upon your own estimate of what they might be instead of upon Mr. Mayer's testimony as to what connections there actually are there?

A. Yes. I consider that sufficient to convey the gas around the works and take the tar off, in a new plant.

Q. Let me call your attention to the six holders at 14th Street which you valued at $146,600. Mr. Logan's valuation is $180,000 and Mr. Mayer's $178,885. Now, in view of the experience of these gentlemen in the construction of holders in the City of New York are you still prepared to say that it would cost only $146,600?

A. I happened to have——

Q. I merely ask you whether in view of their testimony and their experience in New York City you still, on second thought, wish to say that the value of those holders, cost of reproduction, would be only $146,600?

A. That is the whole question? *A.* Yes.

5333 Q. Now, take the two holders following, which Mr. Logan valued at $40,000, and you valued at nearly one-third off, or $27,360; in view of Mr. Logan's experience, do you still feel that your figure is right?

A. Yes, Mr. Logan sells the holders and I buy them.

Q. What?

A. Mr. Logan sells holders and I buy them. I buy them as cheap as I can get them.

Q. And Mr. Logan has had experience in installing holders in the City of New York?

A. Yes, and I get bids on installing holders in the City of New York, too.

Q. It is a question of what kind of holders they may be. Can you tell me what weight you allowed for the six holders in computing your value of $146,600?

A. I could not get at the weight of those holders, but I based my estimate of the values of those holders entirely on what I had a bid for the construction of similar holders, only heavier.

Q. That would require us to examine somebody else, and we are now examining you. What weight did you assume in your computation of $146,600?

A. I had a bid for a No. 12 iron——

Q. No, no, no. That is not the question. I say what weights did you assume those six holders to be in material, entire construction, including the holder and the guide frame and connections, how many pounds of material?

A. I did not put it into pounds, because I could not measure it.

Q. Well, how many pounds would it represent in weight if the value was $146,600, because the value of a holder depends upon its weight, does it not, and the amount of material in it?

A. Yes.

Q. Let us see. What would you say the weight of these holders was, to equal $146,600?

A. I have not figured that up at all. I based it entirely on the capacity of the holder. As I say, those holders are counterbalanced, and I went there several times to take the pressures on them,
5334 and was always frustrated, in one way or another.

Q. Now, how were you obstructed, Mr. Edgerton?

A. Well, I went there with my apparatus, pressure gauges, and was going to measure them, and they—one thing is, they are out of use, and I asked Mr. Riblet to fill them up, and he said he could not then. I know better. I know——

Mr. MATHEWSON: I move to strike out "I know better."

The MASTER: Well, he said he could not fill them up.

Q. Do you mean that those holders are out of use, Mr. Edgerton?

A. I never saw them used at all.

Q. Well, do you mean to say that they were or are out of use?

A. Decidedly. I have gone to that place now about six or seven times to see those holders used, night and day, and never saw them in use. There were four or five of them sometimes down.

Q. Did you take any measurement of the holders at 14th Street?

A. I did of the big holders, but these small holders are absolutely out of use.

Q. Well, you are quite mistaken as to that——

A. He told me something about their being used at night, and I went down there at night or in the morning, because I wanted to see if there was anything in it, because I had made my mind up from observations that those holders were not in use. In one of them the water was down about fifteen feet, and it is perfectly absurd to say they are in use.

Q. What about these two holders you valued at $27,360? You have not the weight of those holders either, have you?

A. They are out of use now; they could not possibly be weighed. In the process—in regard to the two holders over in the other yard, 250,000 feet, I say that the water was down about fifteen feet
5335 in one of them when I examined it, and they were counterweighed. We would not have been able to ascertain the pressure. One of them, I believe, was up about four or five feet.

Q. I merely asked you whether you had the weight, or can you state the weight you assumed for those two holders?

A. I did not figure out the weight at all, because I did not have the

data. I had to put it on the capacity, and I figured that cost out entirely on capacity per thousand, comparing with prices I have obtained.

Q. Does not the construction of the guide frame considerably alter the weight of the holder, or has not it something to do with the weight, holders of a similar capacity?

A. Oh, you can put——

Q. Just answer the question. It is a straight question, I think?

A. The weight of the guide frame has to do with it, certainly. The guide frame is part of the construction.

Q. Did you estimate the weight of the guide frames in the case of those holders?

A. Not in those holders, no, sir.

Q. How many cents per pound would you allow for the material in those holders?

A. I allowed from 6.6 cents to 7 cents a pound. I took Mr. Mayer's figures in regard to the cost on such as I could ascertain the weight of.

Q. Now, Mr. Mayer's value for the holders appears to be $789,604 including the tanks, and Mr. Marks says that he considers that a fair valuation, as you heard. Do you still think that $546,700, or thirty per cent. or more off, is the value?

A. Yes, sir.

Q. Does the price per pound remain the same whether the holders are in a steel tank or brick tank?

A. The price per pound would be slightly larger in a brick tank, that is of the whole apparatus.

5336 Q. How much larger, Mr. Edgerton?

A. I should not allow more than half a cent a pound for the difference between the holders and tank.

Q. Would the 6½ cents per pound be for brick or steel tanks?

A. That is the price that is generally used there for the holders themselves, and in some cases I used a slightly larger figure, 7 cents, and I think in one case 7.1 cents.

Q. Is that for brick or steel tanks?

A. That is for a brick tank.

Q. Now, referring to 42d Street apparatus, and the contents of purifier house, we have eight purifier boxes, with covers, which Mr. Logan valued at $40,000, and Mr. Mayer at $37,840, new. Your valuation is about twenty per cent. less than Mr. Logan's or $32,750. Will you tell me how many pounds of weight you assumed those purifier boxes, covers, connections and supports represent?

A. I can tell you the data on which I figured it out.

Q. Well, I would like the weight and the cents per pound which produced your $32,750.

A. I think it was five cents per pound for that plain cast iron work, ¾ of an inch thick at the bottom and ⅞ of an inch thick flanges, and I took eight pounds to the square foot as the weight of the covers——

Q. Being wrought iron?

A. Wrought iron. $1,500 is the cost of a centre seal and $800 the cost of a hoist, I think; that is my recollection of the elements which entered into those boxes.

Q. How many pounds of material did you make out for the boxes and covers, the whole thing which you valued at $32,750?

A. Cast iron sides and bottom, 40,110 pounds; columns and supports, 5,520 pounds; wrought iron covers, 5,213 pounds.

Q. Each?

A. This is for one purifier and multiply it by eight.

Q. Very good. Continue, or is that all?

5337 A. I-beams, supports, 4,600 pounds; trays, it all amounts to $2,609.38.

Q. How many pounds does it represent altogether for one purifier box with covers, etc., which you multiply by eight?

A. There being different classes of work, I did not add them together, but will do so.

Q. If it will not take you more than a moment, I would be glad of the total?

A. 55,443 pounds, that is exclusive of centre seals or carriages.

Q. And including the centre seals and carriages, how much would it be, and connections, if you have not included those?

A. Figuring out the weight of centre seals is rather complicated. I took it at the price of $1,500 for those centre seals, which would cover a centre seal of that size.

Q. You did not compute the weight of the center seals?

A. I did not compute the weight of the center seals, no, sir.

Q. Did you put in the carriages by weight?

A. No, the weight of the carriages. I took them, well, at about the same price Mr. Mayer does. I don't think my price differs from his.

Q. What price did you take for the carriages?

A. I think they were eight hundred or nine hundred dollars apiece.

Q. New?

A. New, yes. All this was new. I think Mr. Mayer's weights exceeded mine by the proportion of 69,000 to 57,000 or 59,000, something like that; they were a little more than mine.

Q. Now, about the four purifying boxes below with connections, supports and covers; Mr. Logan valued those new at $20,000, and you at $16,560, or nearly twenty per cent. less?

A. Those were four boxes about the same area, I think.

Q. Did you compute that on the same basis as to cents per pound of value for material?

5338 A. Yes, I took—all the purifier boxes are computed on the same data.

Q. Will you give me the details of the cents per pound which you assumed for your cast-iron work, including the cost of material, shop labor, weight, etc.?

A. Erected on the spot I think I figured it at five cents.

Q. How did you make that up in detail?

A. It would average about that.

Q. How much average price of material per pound?
A. You mean dividing it up as to shop labor and all that?
Q. Yes.
A. I did not attempt that. I was not doing shop work. I say this is on what I know from buying that kind of apparatus, the prices they put on and charge for it. I did not attempt to go into any shop details about it.
Q. Now from a manufacturer's standpoint as to what labor he would have to employ or materials to produce the result.
A. Right straight through I go on a theory that I am a buyer of gas works.
Q. I understand, and you do not divide that five cents up into details?
A. No, I do not know how they get at their figures, I know what I can buy them for when I get them.
Q. The same is true of each case where you have used a certain number of cents per pound as your multiplier?
A. Yes. I have classified the various details of the gas machinery into prices per pound as I got it from various parties, and I make up my mind from that, adding on these extraordinary New York conditions—of course all these prices, you understand, seem very high to me; I will say that, frankly, they are 20 per cent. higher than I am used to.

Q. Well, they seem very low to us, so it makes a fair propo-
5339 sition perhaps. As you say you found Mr. Mayer's descriptions and dimensions substantially or generally correct, I judge that the difference between your valuations and his must rest largely in the number of cents which you allow per pound in cases where you were able to estimate the weight?
A. May be in the price per pound possibly, and in some of the weights, as I say, his weight of the purifier boxes was higher than mine.
Q. When did you last purchase any purifier boxes in New York City?
A. I have not bought any purifier boxes in New York City. I say that I have added on—in fact my figures or multipliers differ very little from Mr. Mayer's, as I recall it. I think his was 5.6 cents on that work and mine was 5 cents.
Q. How lately have you bought any purifier boxes anywhere?
A. I have not bought any lately. I do not use them in that shape. Those purifier boxes are out of date, anyhow.
Q. That may be, too; that is another story.
A. I could not get any figures on them one way or another.
Q. They were in use, were they not?
A. Yes.
Q. Now, as to the apparatus, Mr. Marks testified that Mr. Mayer's figures he considered substantially correct as to cost, they differing only in depreciation. Do you differ with Mr. Marks in that conclusion as to the 42d Street station?
A. I judge I do, from my view of it. He——
Q. Now, as to connections at the 42d Street station, you have

them valued at only $22,950, while Mr. Mayer's value, approved by Mr. Marks, is $134,157, or something like six times as great. Did you make your estimate of these yard connections also -n the capacity of the plant, instead of taking the descriptions of the connections actually existing?

A. Well, nobody could figure up any value from those descriptions. I had to throw that aside at once.

5340 Q. And as a matter of fact you did not take dimensions or have dimensions, but simply made an estimate as you did in the case of the 14th Street plant, is that right?

A. I estimated on the basis of the valves and connections required for a works of that capacity.

Q. Well, that is what you have said as to 14th Street, and you pursued the same course at 42d Street, didn't you?

A. Yes, sir.

Q. And each one of the other stations as to connections?

A. Yes, except on the holder stations. There I could figure in detail on the valves and pipes. I think I figured there on the details. It was not complicated with old stuff.

Q. Which station was that?

A. The old stations. Understand, these old stations are complicated with an immense amount of dead timber.

Q. How are these purifiers out of date, in what way?

A. Well, at the present date they will build them deeper; instead of shallow purifiers three feet in depth, they will build them six or seven feet, or even more, and put it in the depth instead of area.

Q. Do you mean to say that purifier boxes of that size are not erected to-day, or substantially that size?

A. They might where they use lime, or if they were old-fashioned folk, yes.

Q. Well, there are a great many purifier boxes of that sort existing, are they not, in plants which have grown up in the past?

A. Yes, that is the old style of box, all right.

Q. And if you think greater depths are better, cannot these be deepened?

A. I saw some effort to——

Q. Well, cannot they be? That is a simple question, not what you have seen, but *it is* not possible to deepen them?

A. They had better build new ones than try to deepen those.

Q. They could be deepened, could they not?

5341 A. You could use the cover, but the sides could not be adapted; you could put in new sides and deepen the sides and use the bottom perhaps, jack them up.

Q. Well, you know as a matter of fact, that it is something that is done every day in that business, to deepen purifier boxes, do you not, that it is constantly done?

A. Well, I have seen it tried, yes. I do not like it much——

Q. Yes, I know. It is constantly done, is it not?

A. — think I have put up second hand purifier boxes——

Q. Won't you answer my questions, Mr. Edgerton, and we will get on so much faster?

A. Yes.

—. Now, as a matter of fact, you testified in regard to the 14th Street plant, that a great deal of this apparatus, in fact nearly all of it, I think practically, and perhaps all of it, was apparently in use and it seemed to be doing the business, but that while it looked well enough on the outside you thought there must be some interior depreciation. Is that a fair statement of what you meant to say?

A. No—in regard to engines and exhausters and a lot of things of that kind, but there is plenty more of the large apparatus, that is very much depreciated on the outside, and as far as being all of it in use, it is very far from being all in use.

Q. But in the smaller apparatus, respecting which you testified at 14th Street that your depreciation represented a loss of life, or interior deterioration, the same testimony would be given by you respecting the corresponding items, or the depreciation which you have allowed for corresponding items in the other plants, would it not, generally?

A. Yes. I cannot see the insides of those machines, that is true.

Q. I am merely trying to find whether it is necessary to examine you on the other items in other plants of a similar character. Your method of depreciation would be substantially similar on the

5342 same items in other plants?

A. Well, on those exhausters and engines I should say I have put on a depreciation which would involve generally an overhauling of them and putting them in first-class order, which I considered that depreciation factor would about cover.

Q. Now, in reference to the holders at 42d Street, the first four, 250,000 cubic feet each, Mr. Logan's valuation of the holders is $120,000 and your valuation of these holders is only $73,900. Doesn't that shake your confidence in the figure which you have given?

A. No, sir.

Q. What weight did you assume for those four holders, including their guide frames, connections and the entire construction?

A. Those holders weighed more than I was told the pressure would account for. Mr. Mayer gave it, I think, 4½ inches; I found 5.2 inches.

Q. How many pounds did you calculate that would mean on the entire structure, including the guide frames and connections?

(Witness searches for a book.)

Q. Well, can you tell me how many cents per pound of weight you allowed in computing your value of $73,900 for those four holders?

A. 6.6 cents, I think, I figured on that holder shell, and I had the pressure at 5.2, and measured the submerged iron counter-balance by the water in the cup and then allowed for the levity of the gas in the holder .650 of air.

Q. But 6.6 cents, how many pounds would that leave for $73,900, about? It would be about 1,120,000 pounds, wouldn't it, Mr. Edgerton?

A. Yes.

Q. And didn't you allow the same unit value per pound for the guide frame and the connections as you did for the shell?

5343 A. No, I did not. That guide frame is a kind of a filligree casting, and I took that at, I think, four cents a pound; cast iron frame.

Q. I suppose taking the tanks and holders in the aggregate, the fact that Mr. Marks agreed with Mr. Mayer's total substantially as to original cost would not affect your view that the value was $40,000 or $50,000 less, would it?

A. No, accepting Mr. Mayer's figures would not affect my figures at all, nor my method of getting at it.

Q. That is true, I suppose, in every case where they agree?

A. In every case where they agreed. I looked at the thing in my own way and he looked at it in his.

Q. On the 44th Street plant?

A. I have explained there I do not think Mr. Marks in his——

Q. Well, I guess Mr. Marks is construing his own testimony?

A. I just went around with him on one works. I did not notice him figuring at all on that.

Q. In the 44th Street plant, the value of the connections you make $51,850; Mr. Mayer, approved by Mr. Marks, makes it $99,910. Is that still your view?

A. Yes. I allowed a little more for connections, on account of the water gas plant.

Q. Let us take the holders here at 44th Street, as you suggested taking up some others. Mr. Logan valued the four holders at 44th Street at $140,000; you value those same four holders at only $75,000, or at about fifty per cent. of his valuation. Now, will you tell me how much the entire weight of those constructions was, according to your computation?

A. Those holders, ninety-five feet six inches diameter, weight 203,300 pounds.

Q. Each?

A. Each one; and the guide frames at one-third the cost of the holder, I put that there to guide frames, I could not get particulars of them, and did not calculate that part, but took it at one-third the cost of the holder.

5344 Q. Do you mean one-third the cost or one-third of the weight?

A. One-third of the cost.

Q. What would that make for a guide frame for one of the holders?

A. Do you mean in weight?

Q. No, I mean——

A. $4,466.

Q. For each holder?

A. For each holder.

Q. What weight would that represent? Can you tell, about?

A. It would be about 100,000 pounds.

Q. Doesn't it make a good deal of difference how many columns

there are in a guide frame as to the proportion of value of the guide frame to the holder?

A. Oh, yes. You could put a good many guide frames around there; the more guide frames you put the more cost it would be.

Q. Columns, you mean?

A. Yes, columns.

Q. Do you remember how many there were here, number of holders?

A. I think twelve. I think I have only got eight down here on Mr. Mayer's figures. Twice, I think, where he has sixteen, I have twenty once.

Q. Was this the case?

A. I do not state the number here.

Q. How many cents per pound did you take for the value of that holder?

A. 6.6 cents.

Q. What weight did you take for the connections for each holder?

A. 40,000 pounds.

Q. And how many cents per pound for that?

A. Two cents, plain pipe castings, except I allowed for valves in my calculations and connections.

Q. Doesn't the fact that Mr. Logan valued this at $140,000 he being familiar with New York conditions, shake your confidence in your estimate of only $75,000 for those four holders?

A. Not a bit.

Q. Well, let us take the next holder, 2,000,000 cubic feet capacity. Mr. Logan's valuation was $120,000 and yours is only $84,000, new. Would you make that same reply as to your judgment in that regard?

A. Yes, I say constantly that I am a buyer in this case in-
5345 stead of a seller, and it makes a difference.

Q. But there has to be a seller wherever there is a buyer, and the price is the same whichever side you look at it, isn't it?

A. You have to come to the same price to get a trade, I guess.

Mr. MATHEWSON: We find it so in our business, at any rate.

The WITNESS: I do not think Mr. Logan would be much of a seller at those prices.

Q. You know the Logan Iron Works has a pretty large business in such things?

A. No; on the contrary, I have seen mighty few of his holders. I see holders of every other make. The only holders I have seen of Logan's are right down here among these works. I have been pretty well over the country with regard to holders, and I see thirty of other makers to one of Logan's, certainly.

Q. Have you bought holders set at the prices you have given anywhere in the country within the last ten years, of that capacity?

A. Less than that. I say this price is twenty-five per cent. or thirty per cent. greater than the bids I have right in my pocket.

Q. Where? Where have you bought one in the last ten years of this capacity, and weight?

A. I don't say that capacity. As the capacity gets greater the price gets less.

Q. Well, I am trying to deal with this particular holder?

A. I have not bought a holder of that capacity in the last ten years; no, sir.

Q. How about the holders of Bartlett, Hayward & Company, or Mr. Mayer? You have seen those in a great many places, haven't you?

A. Yes, and bought them just as cheap as I am talking about.

Q. They don't seem to have much difficulty in selling
5346 them, as far as your observation goes, in other places? You see lots of them?

A. Yes, you see plenty of their holders; indeed you do.

Q. Now, again, on the 21st Street plant, four holders, valued at $182,000 by Mr. Logan, valued by you at only $115,000, while the valuation of Mr. Mayer is $219,400, or just about twice your figure. You heard the testimony, or read it, given by Mr. Mayer, didn't you, as to that being a fair value?

A. On 21st Street, four holders?

Q. Yes.

A. Yes, I took his own figure of weight.

Q. In view of his experience and the holders you have seen about the country, you are still prepared to say that those particular holders, of that weight, could be installed to-day for half his price, or $115,700?

A. Yes, less than that.

Q. How many pounds did you assume there were in the total construction of those four holders, including the shell, guide frames and connections?

A. That holder threw 8.91 inches.

Q. And Mr. Mayer's pressure was only 8.70. You found a little higher pressure in that case, didn't you?

A. Yes.

Q. And how much did you compute the weight of the holder to be?

A. 282,000 pounds at 6.6 cents.

Q. How much for the guide frame?

A. 164,700 pounds.

Q. A guide frame for 164,700?

A. Yes, sir.

Q. How many columns? Aren't there sixteen cast-iron columns?

A. Yes, sixteen, I think. That is right, I counted those.

Q. Are those cast iron?

A. No, those are, I think, steel. No, cast iron, cast-iron columns.

Q. Do you mean to say that in your judgment the weight of the guide frames and columns was only 164,700 pounds for each holder?

A. Yes.

Q. As it stands there?

A. Yes.

5347 Q. Did you measure those guide frames and compute their value?

A. I did.

Q. And computed their weight?
A. Yes, sir.
Q. Now, let us have the details of that computation?
A. — haven't anything more here than 164,700 at four cents; cast-iron girders 16,150 pounds, and guide rails 960 pounds.
Q. Cannot you give us the dimensions from which you computed a weight of only 164,700 pounds for each guide frame, including columns?
A. No, I have not carried that out on the memorandum of this calculation. I notice it amounts to more than one-third of the cost of the shell. However, that is considered an ample allowance for guide frames.
Q. How thick did you figure the cast iron in the columns?
A. I think it was an inch thick.
Q. Well, are you sure about it?
A. That is what I allowed for cast iron, unless I found—there were some of those columns that looked like cast iron, which, when I saw a hole bored in them I found to be steel.
Q. What did you find to be the diameter and height of these columns?
A. In this computation here I have not carried that out. I have not got it down on the pages as a resumé of my calculations. It shows the weight of each part, the cost of each part and the total cost of the holders and inlets and outlets. I think that perhaps an inlet and outlet I carried out, four of them which we examined. I see it is four cents here, a pound.
Q. Did you include any iron work for the brick tank?
A. Yes, that is included.
Q. What weight for that and what price?
A. It is not put down here separate.
Q. Now, will you look at the apparatus under 99th Street station for a moment. We have four sets of ten feet U. G. I. Lowe
5348 water gas apparatus, which Mr. Mayer valued, including the floor, at $64,167. I find that you value those at $45,200, and I find a note underneath as follows: "The water gas apparatus (Mayer 1539) is valued at $56,000, and $8,167 for the charging floor. The apparatus was installed in 1904 and price was obtained from the U. G. I. Imp. Co." What does that mean?
A. United Gas & Improvement Company.
Q. What is the meaning of that note? Explain will you a little more fully what you mean by that?
A. I took it out of the description of Logan.
Q. What descr*ip*tion?

Mr. KIRBY: That was included there so as to tally up with the building.

Q. Then you do not mean that you obtained your price and value of $45,200 from the U. G. I. Company?
A. No, sir.
Q. The note, following your figure, I thought it might have referred to this?
A. No, it was Mr. Mayer's, I think.

Q. Now, near the end of the apparatus schedule of the 99th Street station under "retort house" I find "eleven through benches of sixes, back to back, cost new blank dollars, depreciation blank per cent., value blank dollars." I find nothing carried down either in the columns of "original cost" or of "present value, less depreciation"?

A. That is an omission. I noticed that last night but I had not the data right at hand to supply that. That is an omission, sir.

Q. Well, for the purposes of completing the schedule is it fair to insert Mr. Mayer's valuation in that case, as you have in many of the others, or do you wish to fix a value differing from his?

A. 99th Street, I should like to put in my own value on that. I don't know how it came to be omitted. I have some correc-
5349 tions to make on these on deductions and additions and I would like to put in the value of those benches.

Q. Can you supply that now?

A. I can.

Q. Very good, I should be glad to have you do it and we can fill it in and the record will be complete.

A. (The witness computing.) $39,900.

Q. For eleven benches?

A. For eleven benches and eleven empty arches.

Q. New?

A. New.

Q. Did you observe Mr. Mayer's addenda, Item 1, that instead of eleven there were twenty benches?

A. Yes, I say, I added eleven arches together with the iron work for eleven——

Q. That will be $39,900?

A. They are just the same practically as 44th Street. $39,900.

Q. That is ten per cent. you allowed there, wasn't it, for depreciation?

A. The depreciation on benches in cases is based on depreciation of one-third of the $150 for retorts and setting as applied to the holder and it amounts to 6½ per cent. on going apparatus.

Q. Well, what would you say as to this? I merely wish you to fill the records by saying what depreciation you apply to this?

A. 6½ per cent.

Q. And that would give a net figure of how much?

A. $37,307.

Q. Now, did you take into account there Mr. Edgerton, that the material was all on hand to set those eleven empty arches, absolutely new material, and merely required the setting, in making your estimate?

A. No, sir, I noticed that in one other case, that was at 42d Street, and there had not been anything done there toward doing the setting, and I thought if they had done it up to that time they were possibly reconsidering it.

Q. So you made no allowance in those cases?

5350 A. No, sir; I saw it was not done, and if they had the material when Mr. Mayer was there it was still there, and what material I saw piled up in the empty arches has not anything to do with that setting at all.

Q. You mean it had not?
A. At 42d Street.
Q. You do not mean not at 99th Street?
A. No, I don't remember that.
Q. Now let us look at 18th Street station for a minute. The first item in apparatus, "two vertical boilers"; you have said, "value nothing"; you have allowed no value either new or as depreciated in that case, have you?
A. No, I did not. I agree with Mr. Mayer on that.
Q. Did he allow any value for it?
A. No, it was burned out, scrap.
Q. Let us take the 18th Street connections. Mr. Mayer, computing from the schedule of connections, including length and sizes, finds a value of $21,987 for the 18th Street connections; and is it a fact that your estimate is only $2,800, about ten per cent. of his?
A. Yes, that is a peculiar case. There was no output at the station to base any calculation on, based on output, and as it was out of use and no output to base connections on, the retort house dismantled, and everything gone to scrap, I just "scrapped" it.
Q. Well, you know the company sends in about three million feet a day there, don't you—or didn't you know that?
A. I think $2,800 would cover what it would require to send into the gas holders, yes, sir.
Q. So you didn't there place a value on the basis of cost of reproduction, at all, did you?
A. No, I did not in regard to connections.
Q. Assuming that Mr. Mayer's figures as to dimensions and descriptions of connections in these various others was correct and you were to compute the cost of installing them new as they
5351 are now without regard to whether they would all be necessary if the plant were to be now constructed, you would not calculate, would you, this estimate of the cost new, in those connections?
A. I think I might differ a little. I think on those holder stations, where they are new, there is some difference, where I computed them.
Q. There would not be a large difference without depreciation and assuming they would all be reproduced as they exist to-day?
A. It should not be large, and I took the prices of valves, the New York prices, and prices of pipe, and computed——
Q. Do you know whether it is steel riveted pipe in these new stations?
A. No, I do not. I computed on the basis of cast iron pipe.
Q. And not steel riveted?
A. I saw riveted pipe for blowers.
Q. Steel riveted pipe would be more expensive, wouldn't it?
A. Yes, I think it would, although not much. That cast iron pipe would be a great deal heavier, but you could take advantage of that making the lighter pipe with steel.
Q. Do you know the price of pipe to-day per ton?
A. I have not priced any to-day, no, sir.
Q. Well, within the last few days?

A. I think it is a little higher than——
Q. About $32 a ton, isn't it, now?
A. Something like that.
Q. Now, here again at the 63rd Street station I find Mr. Logan's value of holder is $160,000—the three million foot holder—and yours is only $129,320. Is there any explanation of that except your different estimate of weight of material or unit value?
A. I have Mr. Mayer's unit of value, I think, on that, and I weighed the holder. I do not see where we could differ.
5352 Q. Well, Mr. Mayer's value is $160,374, and Mr. Logan's is $160,000 exactly?
A. That is the 63rd Street holder?
Q. Yes.
A. I make it only $129,320.
Q. Can you explain the discrepancy there, if you took Mr. Mayer's unit price?
A. Well, that is the holder where I valued the guide frame away up.
Q. What did you value the guide frame at there?
A. $48,000.
Q. What weight did you assume the guide frame to be?
A. There are twenty-four Phœnix columns, I think, there.
Q. One hundred and twenty-two feet high?
A. Yes, 41,000 pounds at five cents.
Q. You do not mean only 41,000?
A. For each panel—each bay, they call them; there would be twenty-four of them at that.
Q. That would be how much for weight of the guide frames then on there?
A. Twenty-four times forty-one.
Q. That would be 984,000?
A. Yes.
Q. What did you compute the weight of the holder to be, the shell?
A. I guess I must have got that pretty close. The shell was 1,209,271 pounds.
Q. Does not a guide frame of that character cost more than other guide frames, aside from the weight?
A. Yes, it is more than half the cost.
Q. Was it double or single bracing, if you noticed?
A. Oh, it was braced tight throughout. I can show you how it looked. It was braced like that (exhibiting a photograph).
Q. Well, would you call that double or single bracing?
A. I would call that sextuple.
Q. Did you allow for all that bracing in your estimate?
A. I tried to.
Q. Did you know that that——
A. (Interrupting:) Those diagonals are a double band there, so that would make it double sextuple (indicating on the photograph).
5353 Q. You allowed for such?
A. Yes, that has been allowed for.

Q. And you think the weight you have given for the guide frame will allow for and cover all that bracing?

A. Yes, I think so. The photograph was taken as a memorandum to be sure to get things in.

Q. Taken by you in other instances also?

A. Yes.

Q. Did you take into account, Mr. Edgerton, that the 63rd Street holder was placed in solid rock, where it had to be, where rock had to be taken out?

A. That is the cheapest kind of holder to build—a tank.

Q. Did you know that fact or take it into consideration, whatever effect it may have?

A. I did. The gas holder tank is calculated out somewhere in the calculation. By the way, I notice they make that seven foot thick at the bottom, I suppose with the idea of holding the rock up. Five feet is ample.

Q. That may be what that sextuple bracing is put in for, to keep the rock up, to do a thorough job while we are about it?

A. Well, it is a fine thing if you can pay for it.

Q. Mr. Edgerton, the two holders at the 65th Street station, which Mr. Logan valued at $52,000 and Mr. Mayer at $57,000, I see you value at only $32,000, and the same about the four holders at that station which Mr. Logan valued at $104,000 and Mr. Mayer valued at $140,000, and you valued them at only $65,600 or a fraction in each case. Did you go over those holders also and get your estimate of weight?

A. No, those are calculated by the cubic contents. Not having the weight, I based those on the cost per thousand cubic feet for holders of that——

Q. What did you estimate that those holders would throw in pressure?

A. Well, I say I did not estimate on that, that the price we allowed them to throw a good pressure.

5354 Q. Well, what weight?

A. In the bid which I have they could on a two lift holder——

Q. No matter about that, I don't care anything about the bids you have. I want to know what pressure you consider those holders throw?

A. They should throw 5.6; along there somewhere.

Q. That is your supposition, that they do about that, is it?

Mr. KIRBY: You have reference to the two small holders?

Mr. MATHEWSON: The two and the four holders; not the four million foot holders.

A. For the price I have estimated in there they would throw a pressure of 5½ inches; 5.6.

Q. And at the same unit price for material which you have suggested previously?

A. No, I think that would be somewhat lower, because it is a lower scale bid or figure.

Q. Such as what?

A. It would be a pretty low figure. I do not think it would come over—it would not come over five cents probably.

Q. For everything, including the shell, the frame and the connections?

A. Including the shell and the frame. This is a brick tank.

Q. But there are pipe connections, aren't there?

A. Yes, inlet and outlet, that is always included.

Q. Did you figure on wrought iron or cast iron columns?

A. This is on wrought iron, modern holder.

Q. Now, the two holders following at this plant, 14,000,000 capacity, Mr. Logan values at $400,000 to reproduce and Mr. Mayer at $398,645, substantially similar figures, and your figure is $294,000, or over $100,000 less. Can you explain such a great discrepancy as that?

A. Well, there is the weight of the holder, the shell at Mr.
5355 Mayer's price, 1,078,000 pounds at 6.6 cents and the guide frame is the same as that Phœnix guide frame $48,000.

Q. Well, let us take the shell in the first place; what is the weight of shell do you understand?

A. 1,478,000 pounds.

Q. Well, that is evidently a clerical error, because that is not the weight Mr. Mayer testified to?

A. Well, he may have included the guide frame.

Q. No, shell alone. Well, we will have to get this thing to agree. What did you figure as the weight of the guide frame in the case of the two big holders?

A. Well, this is one of them, got about the same guide frame——

Q. Well, what weight would you say?

A. Well, that would be like that other one we figured.

Q. Something over 900,000 pounds?

A. What I figured before.

Q. That was 984,000 pounds?

A. Yes.

Q. What weight would you figure for the pipe connections, for those holders each?

A. 62,000 pounds.

Q. Are you aware, or does it appear, that that weight is only one-half the weight which Mr. Mayer found for the pipe connections, or haven't you that in mind?

A. I think he said that there were two sets of connections there. I never heard of two sets.

Q. You figured on only one set?

A. I didn't figure on two inlets and two outlets anywhere.

Q. So if there are two sets of connections of course his weight would be higher than you considered if you were reproducing the holder and connection as it now is?

A. Yes, if I were putting in two sets of connections in a gas holder, I would expect to have them double one set.

Q. Is this not a steel plate guide frame of a different character, instead of Phoenix columns and a different value from the previous frame?

A. Well, there was one Phoenix column and the other of
5356 substantially the same character. I didn't see any particular difference, I took the photograph of that also, but I haven't it here.

Q. You know this is a patented construction known as "ribbon plate" construction, don't you? Isn't that the description of that guide frame?

A. There is a patent on pretty nearly everything new and I didn't know they had a patent on a guide frame, except those where they did it without——

Q. No, on the holder plating, I didn't mean to say the guide frame, if I did—"ribbon plating," and isn't "ribbon plating" much more expensive?

A. You mean to put ribbons in between——

Q. No, don't you know what "ribbon-plating" is?

A. No, I do not.

Q. On a holder?

A. No.

Q. And don't you know it is much more expensive and is considered better than the ordinary construction?

A. I don't know of it being better. We have had holders tight for a good many years, and that is all we want of them.

Q. Well, where the sheets extend in one length from leg to leg. Aren't you familiar with that construction?

A. From upright to upright, you mean?

Q. Yes; are you familiar with that construction?

A. Well, that is a pretty good fancy, I don't know as it is any better, no, I am not acquainted with it.

Q. You are not familiar with the cost of that particular construction?

A. No, sir. I didn't know it was any different, I thought it was the regular construction.

Q. Where have you ever bought yourself, or been in charge of, a four or five million foot holder?

A. I never had charge of a four or five million foot holder.

Q. Did you assume the same figures for values of material in the case of these four million foot holders which we are
5357 & 5358 now considering, which you assumed in the case of the other holders?

A. I think where Mr. Mayer stated 7.1 cent- I multiplied it by 7.1 cents instead of 6.6 cents.

Q. Well, that was the case with these two holders, wasn't it?

A. I don't know which holder that was. I think it was the 132d Street holder.

Q. Then, if you and Mr. Mayer differ in regard to the value of a holder, or you differ with Mr. Mayer and Mr. Logan, because they are practically the same, it must be on account of the different weight of material which each assumes, must it not?

A. Yes; that's it. We do not disagree as much as is supposed.

The WITNESS: I find, Mr. Mathewson, that I have a photograph here showing those two different styles of framing, with a memor-

andum. I think this sextuple was rather the best style, and I should prefer it, without going into the details. It does not show it so clearly, but there are the two holders.

Q. The sextuple as opposed to the double sextuple, if you were to build?

A. Yes.

Q. The double sextuple would be more expensive to build, I suppose, wouldn't it?

A. I suppose so. It appears to be so.

Q. In other words, it has a greater amount of bracing material, of course, than the simple sextuple?

A. Yes, but as a matter of fact, holders are built now days without any of that at all; they go right up in the air without any bracing at all.

Q. Yes, and sometimes they fall down, don't they?

A. No, I don't think that that condemns it at all; I think that is done very commonly; none of that framing is on them.

Adjourned to 10:30 A. M., January 9, 1907.

Last Exhibits:

Complainant's 270.
City's 136.
State's OOO.

5359 Circuit Court of the United States, Southern District of New York.

CONSOLIDATED GAS COMPANY OF NEW YORK, Complainant.

vs.

JULIUS M. MAYER, as Attorney General of the State of New York, WILLIAM TRAVERS JEROME, as District Attorney of New York County, FREDERICK E. GUNNISON, JOHN C. DAVIES, and LUCIAN L. SHEDDEN, Constituting the New York State Commission of Gas and Electricity, and the City of New York, Defendants.

Before Arthur H. Masten, Special Master.

NEW YORK, *January* 9, 1907.

Met pursuant to adjournment.

Present: The Master, Mr. Mathewson, Mr. Burr, Mr. Kirby.

5360 Mr. BURR: Mr. Mathewson has produced the two letters to which reference was made the other day by me, and which have already been marked for identification. I now offer them in evidence. I believe there is no objection to them.

Mr. MATHEWSON: I stated yesterday that, expecting similar courtesies, etc. I would not object.

The MASTER: They take their same numbers.

Papers received and marked City Exhibits Nos. 123 and 124.

HENRY H. EDGERTON resumed.

By Mr. MATHEWSON:

Q. Mr. Edgerton, you spoke yesterday of some bids that you had. I do not understand that you are now constructing any holders in the City of New York?

A. No, sir, but I——

Q. Wait a moment, do not answer anything but the question. And I do not understand that you have been employed to construct any holders here in New York City, have you?

A. No, sir.

Q. What method did you adopt in computing the values of the buildings in the different plants? In other words, did you get the cubic capacity of the buildings?

A. I calculated that in some cases, in order to ascertain what sort of a comparison that would make with the estimates of the buildings; but these buildings, as I computed them, were on the basis of the brick work, foundation and the actual material entering into the construction of the buildings.

Q. Was that so in all cases of buildings that you gave?

A. Yes, sir.

Q. How about the foundations, how did you know how deep they were?

A. I did not absolutely know. I was taking the estimates
5361 or inventory of Mr. Mayer as a guide to the depth of the foundation. I supposed that he either had drawings or some more exact means of informing himself than I had. I want to say right here, though, that I introduced piling into quite a number of buildings that at present have no evidence of having been piled at all, or if they had been piled, that they have sunk and got out of shape in a way which would indicate that there was no piling. On making inquiries in regard to the buildings in the immediate vicinity I found buildings much higher—that is, three stories higher—that were not on piles, and standing better than the building on the opposite side of the street said to be on piles.

Q. Now, did you adopt Mr. Mayer's figures as to the depth of foundation and character of foundations, or his description so far as he gave it in reference to all the buildings?

A. Yes, sir, in reference to all the buildings and foundations.

Q. How about the foundations of apparatus, which he included in the value of buildings? How did you determine how much to include for that?

A. I included foundations for apparatus that had any foundations; I found in many cases there was said to be foundations for machines where there was no machine on the foundation, therefore I could not calculate the foundation under a machine for dipping and cleaning gas stoves, or for sewing up leathers, or some little, trifling matter as that. I suppose those foundations were in there at a time when the building was used for other purposes.

Q. Well, that does not quite answer the question. I asked you how you determined the amount to allow for foundations of apparatus?

A. By his description in all cases where there was anything on a foundation to need it. I say in those places where there was nothing on the foundation or requiring a foundation I did not
5362 calculate it, and there was no definite description by Mr. Mayer. It just said foundation for machinery.

Q. There were very few instances of this?

A. There were quite a good many in 21st Street, right straight through each range of buildings, foundation for machinery, and no machinery on the foundation.

Q. In some cases you did not find any machinery on the foundation, and in those cases you did not calculate anything for the expense of putting the foundation there originally?

A. No, sir.

Q. Take the foundations of the apparatus which you found in position. How did you determine the value of those foundations?

A. Small foundations are easily determined by the size and apparent weight of the machine.

Q. Did you measure the foundations as to depth, or test them in any way as to depth, or their character, except so far as they appeared on the surface, as you might say?

A. The foundation of an engine or a small machine or upright boiler, or something of that sort is of very little consequence.

Q. A good many of them might be of considerable consequence, and I am asking you whether you had any other information except what you saw with the eye?

A. And what we read from Mr. Mayer's description.

Q. Yes, and read from Mr. Mayer's description. And you refer to the schedule which Mr. Mayer furnished to you and Mr. Marks, through counsel for the company, I suppose?

A. Yes.

Mr. KIRBY: And the testimony?

Mr. MATHEWSON: Well, no, I say when he refers to the schedule he refers to that.

Q. In referring to the schedule you mean the one Mr.
5363 Mayer furnished you through the counsel for the company, I suppose?

A. Yes.

Q. So that you did not pursue the method which Mr. Marks pursued in determining the cubic contents of the buildings, in computing your values?

A. I calculated the cubic contents merely out of curiosity, to see how it did compare with the calculation of actual quantities. I did not use it as a factor at all.

Q. Did you compute separately the slating and glazing work, and carpenter work, and the roofer's work, and the stone work, and stair work, the same as you did the brick work?

A. All those were accounted for. All the additions to the buildings of every description were accounted for.

Q. My question was whether you computed—you said in reference to the buildings and walls that you computed the brick work.

Now, I am asking you whether you separately estimated the slate work and other classes of work?

A. Certainly. Carpenter work; so far as the windows and openings are concerned, they are taken as equal to the brick work which they displaced.

Q. What about floors and stairs; did you compute those separately?

A. Floors are computed. So far as stairways are concerned, the allowance is undoubtedly made for them. I did not, except in the case of gasholder framing, and where the stairs are carried up as a matter of some consequence, I did not notice any stairways there that amounted to more than a very small fraction. That would be included in the——

Q. Well, whatever they were, did you compute each one of the separate items—of the individual items separately, such as carpenter work, so much, including material so much and labor so much; brick work so much, including bricks so many, and labor
5364 in laying, so much; slating, so much, including material so much, and labor so much?

A. Yes.

Q. Did you compute those all separately?

A. All separately. They all went in as a separate item.

Q. Won't you take a typical building, say the generator house at Twenty-first Street, which you valued new at $65,500, and with depreciation of fifteen per cent. off at $55,000, and give me the details of that figure. It is page 6 of the Twenty-first Street station.

A. I will say in regard to that generator house, the description given by Mr. Mayer was rather obscure, and it needed—this building had evidently been altered, the roof raised, quite a number of changes and additions made to it, and it is now supported on columns.

Q. That is since 1884, is it, you would think?

A. I think it was possibly done to accommodate the Lowe process generators.

Q. In other words, the building is now, so far as you can make out, distinctly different from what it was in 1884, is it not?

A. Yes.

Q. You found a very great amount of new foundation in that building, did you not, put in apparently within the last fifteen or twenty years?

A. Well, I am uncertain about that. There are no descriptions to give any idea of whether those generators were placed on foundations in part that were there before or whether they were special foundations built up for them.

Q. Of course the water gas apparatus requires a foundation under it and a substantial one, and it could not be operated efficiently without foundations under it?

A. No more substantial than the previous retort foundations, or stacks of any account.

Q. Well, don't you know that the water gas apparatus are not located on the same spots as were the previous retorts?

5365 A. There would be possibly a little difference. They would run over onto the space in front of the retorts to some extent, but then there would be plenty of foundation there for them. I was not able to determine that by any measurement of my own, and I do not see how anybody else could, unless they had plans.

Q. Let us have your detail for that house?

A. There is one building there 204 x 74.

Q. I am referring to that. You describe it as 204 x 74 x 30 feet?

A. By 30 feet; yes. There are 460,000 brick, 394 cubic yards of excavation, 18,000 pounds of cast iron columns, 150 steel girders at 2,960 pounds, 3,990 cubic feet of stone footings, 5,700 iron trusses and purlins, 113,960 pounds. And there is the roof factor, 16,606 square feet of slate roofing, 204 lineal feet of ventilators, 408 lineal feet of cast iron gutter; foundation for machinery, cubic contents, 204 x 74 x 30, 452,880 cubic feet; 11,620 feet of cast iron floor pieces, 204 x 74 x 22, 332,000 pounds. By the way, I think there is something due probably to come out of that; I think those generators and apparatus took up part of that space. Steel to carry the same, 204 x 74 x 5, 227,000 pounds. Then there are 48,502 columns, figured in the adjoining generator house. This generator house and the other standing contiguous have got columns there that form, as it were, a sort of a party wall, that is, it is to be divided between two; and I find the probability is Mr. Mayer may have thrown them into the generator house, or in some cases they may have been divided between the two houses.

Q. Did you put them into this generator house?

A. It is figured in the adjoining generator house.

Q. The columns are?

A. Yes, sir. Here is the situation there, Mr. Master, in regard to that (indicating). This is an old building of very large ex-

5366 tent. If the roof has been raised to accommodate different machinery in the following changes that I have spoken about hitherto in changing processes from one process to another, it would involve that much of this building, and apparently that is where the roof was raised and these columns put in here from point to point. Now, those columns, I say, in this generator house are figured over in that one, in that case. Here are three roofs; th-y run in this shape here. There is one roof there and supported on those columns and in that shape. Here are the only walls, in front and back, and there are the columns. So there are two lines of columns running down completely through that building, and I was at a loss to know whether that was previously supported on brick walls, which it may possibly have been, or whether it was supported on columns. If it was merely supported on brick walls, those walls had to be torn down, and a good deal of throwing away of material, which may account for a considerable duplication of material in the construction of that building. That is not only from building up, but from tearing down the old building. I think very likely that all went into the cost of construction of that building.

Q. Well, you don't know whether it went into cost of construction or not, do you?

A. I don't see where it could go if it did not.

Q. Well, you don't know anything about that?

A. Well, I know what is always done in those cases.

Q. You don't know what has been done in this case, whether it has been charged to construction or charged up to depreciation, do you, as a matter of fact?

A. I have——

Q. Well, do you know?

A. I know a great deal about the way they kept their accounts.

Q. Do you know whether this tearing down at 21st Street
5367 was charged to depreciation or not on the company's books?

A. Following the system that I saw on the company's books——

Q. Do you know in reference to this building we are talking about?

A. Not in this building, no, sir.

Q. Very well, let us not have any remarks made about it now. Now, this roof was raised and these changes were made when the Lowe apparatus was put in, within the last twenty years, apparently, were they not?

A. Yes. There have been three sets of machinery put in there.

Q. Was the roof of this building new?

A. It was apparently new, yes, sir; that is, I mean to say it did not look as old as some of the roofs.

Q. Did it not look like a new roof at that time?

A. It did. The trusses looked as if they were of recent construction. The other buildings, some of them, had that spiderweb construction that we used to adopt, and this was a little more modern type.

Q. Have you given all the detail of your figures?

A. For that particular building?

Q. Yes. Did you make this calculation, or did an assistant make it for you?

A. The calculations were originally made by Mr. Robert S. Woodward in the office while I was present there and with my assistance, and we checked over and consulted about the various prices, and he prompted me up on New York conditions, which seem to be so unfavorable.

Q. Will you let me see your sheet from which you are reading your detail a moment?

Mr. KIRBY: That can go right in the testimony as it is, or I will have a copy prepared and furnish you.

Mr. MATHEWSON: Very good.

Q. Does this total up the $65,500 to which you have testified?

A. $65,500, including $10,000 for foundations.

5368 Q. What do you allow for carpenters per day, do you remember without referring to any sheet? I would like to have your recollection.

A. No, I have not. It is put down here as——

Q. No, not what it is put down at, but do you know what carpenters are paid in the City of New York of your own knowledge?

A. No, not of my own knowledge, they vary.

Q. Now, I will ask you what rate you reckoned on?

A. Sixty cents an hour.

Q. How many hours a day?

A. I don't know as it makes any difference if a man works—if his pay is based on the hour, whether he works eight hours or ten hours.

Q. Perhaps it may. How many hours a day do you compute?

A. Well, the price set by the hour does not make, as I say, any difference. I suppose eight or ten hours a day.

Q. What would you assume that meant per day for a carpenter?

A. That would be $4.80 for eight hours.

Q. How much for slaters?

A. Slate roofing is calculated on the basis of thirty cents per square foot.

Q. But how much per day for slaters?

A. I have no memorandum.

Q. How much for slaters' helpers per day?

A. In regard to the slate, I say it is computed on the square foot, at about fifty per cent. greater than I have had it done for.

Q. You say you have never had any of this done in the City of New York?

A. No.

Q. Now we are talking about New York. How much per foot did you allow for slate roof?

A. Thirty cents.

Q. How much of that was labor and how much slate?

A. The slate would be worth probably from 8 to 14 cents per square foot, according to the quality of it.

5369 Q. How much did you allow here out of the 30 cents for the slate?

A. About ten cents.

Q. And about twenty cents for labor?

A. That would be the difference.

Q. How much do you allow for plumbers per day?

A. Well, as far as the plumbing is concerned, I do not see that it enters in there. There are pipe fitters; it would be 45 cents an hour, and helpers 30 cents.

Q. And how much for painters?

A. Well, as regards painters, a coat of paint is always provided to be put in there when you send the iron work. This is a question of iron-work. I do not suppose there is any extra charge. I have not made any extra charge for iron-work which has been already painted.

Q. Well, you found woodwork painted and various things painted. How much would you allow for a painter per day, or did you not allow anything for painting?

A. I did not see any woodwork painted in there.

Q. Then you allowed nothing for painting in the plants?

A. I will not say plants. I say there, it is all iron-work and steel-work that has been painted.

Q. I am not talking only about this building, but about all the buildings of the various plants. What did you allow for painting; what did you allow for a painter's wages per day? You certainly found painting in some of the plants?

A. Well, a gas plant, no, as far as that is concerned, except perhaps an office building or something of that sort. There is very little painting to be done.

Q. Don't you know, Mr. Edgerton, that as a matter of fact all the steel-work and iron-work is painted after it is put in position, and frequently two coats of paint?

A. Yes. Well, that is put on by—if that is provided, it is put on by the contractor. The erection of a gas holder, unless it has
5370 special terms, or if it is put on by the company, it goes into their ordinary working expenses.

Q. How much do you allow per day for a painter?

A. I have not any allowance for a painter there.

Q. How much for a mason per day?

A. Same rate as the bricklayers, 70 cents an hour.

Q. That would be how much per day, $5.60 for eight hours?

A. Yes, $5.60.

Q. And how much did you allow for an ordinary laborer, I mean a laborer in building construction work?

A. Twenty cents an hour.

Q. That would be $2.40 a day?

A. Twelve hours, yes, if you get them that long.

Q. That would be $1.60 a day for eight hours?

A. Yes, and ten hours would be $2.

Q. How many bricks did you estimate one mason would lay on the average in a day?

A. He would lay about one thousand bricks a day, I suppose, on the average. They can lay a great deal more, but then——

Q. How many laborers did you assume would be required for, say, four masons?

A. Now, as a matter of fact, we know how much that work cost complete per thousand when we know the price of brick and price of labor, and, therefore, at $20 or $21 per thousand, it includes laying and mason work and lime and sand.

Q. You don't know that when you know the price of brick and the price of labor, unless you know how many laborers you have got to have and what their wages are, and I ask you, for instance, what proportion of helpers or laborers you require as compared with the number of masons to keep the masons employed?

A. That is the mason contractor's business.

Q. To establish that $20 or $21 a thousand?

A. Well, that is the price that I have found some of the very most efficient contractors in town offer to do that kind of work for.

5371 Mr. MATHEWSON: I move to strike that out as not responsive and not proper testimony.

The MASTER: Strike it out.

Q. Now, I would like to have you, if you can, give me the details of $21.00 per thousand for brick laid, showing how much is ma-

terial and how much is labor, and how that labor is divided between masons and masons' laborers?

A. Well, that ordinary brick was $7.50 and the difference between that and $21.00 is labor and mortar and lime.

Q. I know, but I would like to have you divide it up. Can you do it?

A. No, I do not believe anybody else can except a contractor.

Q. Well, you cannot, that is the point. Do not testify for somebody else.

A. No.

Q. How many masons would you consider there should be for each foreman required?

A. Well, now that is a matter that I did not go into at all, in connection with this construction. It is not necessary. It is simply superfluous and is just talk.

Q. Did you make any allowance for time keeping on the job?

A. I made an ample allowance for inspectors.

Q. How much did you allow out of this $21.00 for time keeping on the job?

A. I allowed as shown in the exhibit there and shown in the inventory and appraisal, I allowed some $300,000, I think it was, for inspection and various overlooking of the plans.

Q. That includes, then, the keeping of time on the job and the superintendence, does it?

A. Yes, plenty of it.

Q. What did you allow as the value of Portland cement?

A. $1.75 a barrel. That is rather an excessive allowance unless they have to cart it to the place, but these works are built right along the dock front.

5372 Q. How much per thousand brick?

A. I say, as to the cement and sand required, we have the mixture in building the various parts requiring cement, such as tanks, and it is included in the cost of brick work at so much per thousand brick. I have not pretended to separate that off. Some use more and some less. It provides for grouting the brick work as it goes up, and for the sufficient use of cement for the different classes of work.

Q. What mixture of cement and sand did you include in this $21.00? What proportion?

A. Well, sometimes it is one to one and sometimes one to two.

Q. Yes, but so far as you were concerned in reaching your $21.00 a thousand, what did you allow?

A. One of cement and two of sand is the ordinary proportion, unless a man——

Q. Was that what you allowed in getting the $21.00?

A. $21.00 a thousand, yes.

Q. One of cement and two of sand?

A. Yes. In some cases one of cement and one of sand, it depends upon where it is located in the tank.

Q. How about this building that we have been discussing, at Twenty-first Street, the generator house?

A. Except in the foundation, that was not used——

Q. Just tell me how much there was, what proportion there of cement to sand you employed for the work?

A. It is built with mortar; we do not employ any sand above the ground level or any cement, except in extraordinary cases. Some engineers want all cement put in a building and others——

Q. You did not allow any cement above the foundation, is that right?

A. No.

Q. And in the foundation, or wherever you did use cement, you allowed one part of cement and two of sand.

A. Yes.

5373 Q. Was that not the proportion you allowed in substantially all the buildings you examined, or foundations?

A. That is an excessive allowance——

Q. That is not the question. Won't you be good enough to answer the question. In your figures you have given here, is not that the proportion, one of cement to two of sand, that you allowed in the foundations of substantially all of the buildings?

A. I tried to tell you that I did not proportion cement at all, except in extra cases of tanks. If you will let me tell you how to draw out and specify for different kinds of work, that is a different point. I estimated right straight ahead, based on a thousand of brick work complete.

Q. Twenty-one dollars?

A. Yes, sir.

Q. Without goin*ing* into the details of figuring out the amount of cement and the amount of sand, or the proportion, is that right?

A. We do that——

Q. Is that right?

A. Yes.

Q. And did you allow any cement in any of the buildings for the foundations, or did you consider mortar as used in every case?

A. Mortar is generally used——

Q. That is not the point, what is generally used. I am asking now what you contemplated or used in your estimates of values which you have given here?

A. I provide just simply for mortar.

Q. Now, in reference to the apparatus at these various stations, did you compute the weight of the apparatus and the various items of apparatus and compute the full value of them, based on the weight multiplied by a certain number of cents per pound?

A. Yes.

Q. In every case?

A. Not in every case. In the case of a purifier box, if it differed slightly only in size and depth, I computed it according to the ones that I had computed in detail. That is, say a box is 20 x 22 and another box is 22 x 22, the alteration was merely made in the

5374 bottom, or the extra amount added on that that would require for that amount of iron at the rate in which I found it in each case.

Q. But, as a matter of fact, when you got back to the bottom, that

also was computed on an assumed weight, multiplied by a cost per pound of that weight?

A. Yes.

Q. Now, what classes of apparatus, if you will state, did you compute in that way, according to that method?

A. All I computed were computed by weights and by units of material.

Q. But what classes of apparatus, did you compute?

A. All I computed, that is, every one of them, I don't know what classes, every class; that is, the generators and superheaters and carburretors and purifiers and all the framing that I computed; it was all computed by weight except in those instances where I told you I could not get at the weight.

Q. And those which were not computed by weight included the rest of the apparatus, such as engines and pumps and so forth?

A. Engines and pumps were computed as a unit for the price of an engine and allowing for setting up; of course, I did not compute the parts of an engine nor the weight of a cylinder or piston rod. I took it as a complete thing.

Q. So I understood. And you think you have named the general classes of apparatus for which you did compute a value by taking what you assumed to be the weight and the value per pound of material?

A. Yes. I did not assume the weight, I calculated it.

Q. Yes, what you took to be the weight, put it that way?

A. Yes.

Q. Do I understand that you measured every single piece of apparatus in all these plants at the time of your disposal for this recent examination?

A. I checked off in a number of cases Mr. Mayer's measure-
5375 ments, and in a number of others I took it where I had not any reason to doubt it.

Q. Will you give me the details of the value of the building in 132d Street, the exhauster and engine house respecting which Mr. Marks testified, and which he said he took as a unit from which he estimated other buildings?

Mr. KIRBY: Do you mean the brick building 100 x 49 x 29? Because it is called in the testimony governor and boiler house.

The WITNESS: That is the only house there. There is nothing else there. It has got to be it.

Q. It is described in the testimony or in the schedule as governor and boiler house, 100 x 49 feet by an average of 29 feet high. You gave the value at $21,000, and I would like you to give me the details of that and your method of computing it in such detail as you employed.

A. Excavation, 53,900 cubic feet, 2,000 cubic yards. Boiler——

Q. At what price?

A. At 50 cents. That is shallow excavation. Boiler room, 700 cubic yards and fittings—743 cubic yards at fifty cents. Concrete footings, 990 cubic feet; intermediate boiler and exhauster room, 90 cubic feet; boiler and exhauster room footings, 300 cubic

feet; floor exhauster room, 20 x 30 equal 600 cubic feet, 1,680 cubic feet. The floor of the exhauster room is concrete, it is 20 x 30 feet. There is common brick of foundation wall, 5,529; intermediate of walls, 420; main walls, 9,536; pilasters, 44; corbels, 249; intermediate walls, 1,372; gables, 500. Total, 17,650 feet; less openings, 16,150. Then there is some glazed brick, 100, 25—approximately 4,000 glazed brick at $25. Paving brick, 4,000 at $10. Fireproof concrete arches, area on the main floor, 4,900 square feet, at fifty cents. Cement floor in the exhauster room,
5376 20 x 30, 600 square feet; main floor, 2,800 square feet. Total, 3,400 square feet. Glazed coping, 298 lineal feet; bluestone window sills, 9 x 6 x 1, 130 feet; water table, 260 cubic feet, at fifty cents.

Q. When you say 9 x 6 x 1, what do you mean by 1? One what?

A. Nine feet by—— I don't quite understand that. I suppose it was in feet, 9 feet by 6 inches by 1 foot, I suppose. The lintels the same. Two hundred and sixty cubic feet water table. Exhauster room checker plate floor, 50 tons. Wall plates, cast iron and miscellaneous anchors, trusses and perlins, 14 tons, 64 tons, making 128,000 pounds at five cents. Windows and doors: Window area, 700 square feet, at 25 cents; fireproof doors, 2 x 2-6 x 7-6 steel. Steel stairs: One outside stairs, 30 running feet; inside stairs, 40 running feet; outside platform, 300 running feet; square feet, I suppose that means, 140 feet. Sheet metal monitors, 7 feet high, area 13 x 94, 1,200 square feet. Roofing: Skylight, 300 square feet; flashing copper, 298 x 12 x 1 (that is 12 inches), 298 square feet; 298 square feet gutters; main roof, tar and felt, 3,700 square feet at 6 cents. Slate 10 cents, 3,700 square feet. Terra cotta tiling, main roof tiled, 3,700 square feet. Painting and incidentals there is 10 per cent., that is a summary. The building is $22,000; with the foundation, $22,700.

Q. With the foundations $22,700?

A. Yes; with the foundations $22,700.

Q. What about your foundations for machinery?

A. Well, here is machinery foundations: One, 10 x 20 x 5, 1,000 cubic feet; one 10 x 10 x 5, 500 cubic feet, and one 10 x 15 x 5, 750 cubic feet; 2,250 feet altogether.

Q. That would make how much all told?

A. $700 for those foundations.

Q. $700 for those foundations. I thought you said $2,250 for the foundations?

5377 Mr. KIRBY: That was the number of cubic feet.

The WITNESS: Yes, that was other foundations. This is 100 cubic yards at $7.

Q. What is?

A. $7 a cubic yard for foundation work is $700.

Q. That makes how much, that is the foundation work of buildings or machinery?

A. For machinery.

Q. That makes $22,700, you say?

A. There is a deduction here; $22,700 it is figured in one place.

Q. Your schedule appears to have a value now of only $21,000 instead of $22,700?

A. It is put down here at $22,700, and I say from some reduction or other it is made $21,000 in another place or $21,100.

Q. What was that reduction?

A. I guess I can trace it out there.

Q. Are those detail sheets that you are puzzling over in your handwriting?

A. No, this is not all my handwriting. Some of the calculations were made by other people. I did not pretend to make it all, but I checked it off; but there is a difference frequently occurs in a multitude of figures.

Q. Yes?

A. Well, you have them there in your own summaries, where they have been added and subtracted in a hundred places.

Q. Yes, but I am asking you now for the detail and how you get $21,000 in the schedule if $22,700 is on the detail, what that reduction represents?

A. That summary undoubtedly is not based on—it is an offhand summary. As far as the detail goes, we have here summing up to $21,100, and that is what it was put at. It is possible that I read off there, blocked out as the summary was, an offhand estimate made before the thing was completed, but according to detail here it foots up $21,100.

Q. Now, let us have that detail.

A. And 10 per cent.——

5378 Q. Let us have the detail?

A. It figures up $18,600 for material; then there is $1,860 added to that, making $20,460.

Q. For what?

A. Ten per cent.

Q. That is 10 per cent. of $18,600?

A. Ten per cent. is $1,860 on $18,600. That makes $20,460.

Q. What does that 10 per cent. cover, what is it intended to cover or represent?

A. Ten per cent. is a very usual figure to add on to an estimate to cover contingencies and engineering and unfor-seen or possibly omitted things. It is not an unusual figure to add to an engineering estimate of this kind to wind up.

Q. What about the contractor's profit, how much profit did you allow the contractor there on that cost of labor and material which would install a building?

A. Labor and material amounting to $18,600.

Q. And 10 per cent., $1,860?

A. Well, 10 per cent. would cover—there is less there in that after material summed up in the manner I have described a sum of $2,500.

Q. Eighteen hundred and sixty dollars of that would be the 10 per cent. and the difference between that and $2,500, or $540, would represent the contractor's profit?

A. No, when contractor takes brick work at $21.00 a thousand he

has figured it in that he can do it and have a little money left himself.

Q. In other words, you have not figured any contractor's profits there separately, unless and except as it may be included in the value of the material which you have specified as $18,600, is that right?

A. There are some 15 per cent. added there which would cover not only contingencies, but any——

Q. I know—but you have said that 10 per cent. was $1,860, and that was added as an extra thing. Now that leaves $540 of the $2,500 that you mention, but you say that would not represent the
5379 contractor's profits because the contractor's profits would be included in the $18,600 value of material placed.

A. Some part of that is contractor's work that you can take finished at that figure, and the other is included in the $1,860 and the further sum of $640.

Q. Five hundred and forty dollars?

A. Or $540.

Q. Now, won't you tell me in which of these items of material placed the contractor's profit is included? By the way, would 15 per cent. be fair for contractor's profit on the whole?

A. A contractor told me——

Q. No, not what they told you. I am asking you, would 15 per cent. be a fair contractor's profit?

A. You can get it done for a great deal less than that.

Q. Would 15 per cent. be a fair contractor's profit?

A. It might be for the Consolidated Gas Company.

Mr. MATHEWSON: I move to strike that out.

The MASTER: Strike it out.

Q. Would 15 per cent. be a fair contractor's profit?

A. I have answered his question, 15 per cent. is his own assumption of profit, and it is an excessive one, and I have tried to say that it is not fair.

Q. Very good, you could say no, and that would answer the question?

A. No.

Q. Two letters would answer the whole question. Now, won't you take those items which make up the $18,600. You have given me the schedule of the number of bricks and so forth, but you have not given the values making up the $18,600 in detail You said so many bricks and so much a thousand.

A. 2,743 cubic yards of excavation at fifty cents, $1,370.

Q. Now, the next item is what?

A. Concrete footings, $480. Common brick, $4,760. Glazed brick, $100.

5380 Q. What did you allow for glazed brick, $25?

A. Yes.

Q. Give the prices in each case for the material?

A. It is $25. I gave the prices in the other statements.

Q. No, you did not in most cases, you merely gave the amount.

A. Glazed brick at $25. Paving brick——

Q. How many thousand glazed brick?
A. 4,000; 4,000 paving brick at $10.
Q. How much all told for that, $40?
A. It would be $400; 4,900 square feet of fireproof concrete arches on main floor, 4,900 square feet at 50 cents would be $2,500 about. Cement floors, 3,400 square feet.
Q. At how much a foot?
A. At eight cents a foot.
Q. How much?
A. $520. Glazed coping, approximately, 298 lineal feet, that is $10. Blue stone window sills, $130; 260 cubic feet at 50 cents; steel, $6,400—64 tons at five cents a pound; windows, 700 square feet, at 25 cents, $175; fireproof door, $40; steel stairs, $165.
Q. Did you have any weight for those stairs in your memorandum or any further description than merely steel stairs?
A. Thirty running feet outside stairs, and 40 running feet of inside stairs, and 300 running feet outside platform.
Q. That would be $25 for the outside stairs, $40 for the inside stairs and $100 for the running platform.
A. No, $100 is the total cost of it you know. It is not $100 a foot.
Q. That is what I say?
A. $165 total.
Q. Yes.
A. Sheet metal monitors, 94 feet, at $5, $470. Copper flashing in gutters, 298 square feet, $200; main roof, tar and felt, 3,700 square feet, at 6 cents, $220; slate, 3,700 feet, at 10 cents, $370; terra cotta tile, main roof, 3,700 square feet, 15 cents, $500; painting,
5381 $150. That totaled up $16,100, to which, adding the concrete arching, $2,500, makes $18,600.
Q. Now, about that concrete arching, what would the details of that $2,500 be?
A. That was 4,900 square feet.
Q. At 50 cents?
A. At 50 cents. I got that in, too.
Q. Then that does not go into your total of $16,100, but goes into your total of $18,600?
A. Yes.
Q. Then you add 10 per cent. to $18,600, which is $1,860, for engineering and so forth, and get $20,460?
A. That is correct, yes, $540, yes, that is added altogether, $2,400.
Mr. KIRBY: No, not $2,400.
Q. What do you add to the $18,600 to get your total on that memorandum, your final total?
A. I say I add $2,400.
Q. Well, what does that $2,400 represent?
A. It represents $1,860, the 10 per cent. and the $540.
Q. And taking the $1,860 which is the 10 per cent., what does the additional $540 represent which makes up your total of $21,000?
A. It is that $700 included in here.
Q. But if you add your machinery foundations, which you say are $700, to your $20,460, that makes $21,160, does it not?
A. Yes.

Q. Is that what it should be, $21,160, instead of $21,000, as your schedule states it, or what is the explanation. I am not trying to catch you, but merely to find out.

A. In a thing of this kind it is not like a man scrambling for a penny on the floor, it is a round figure of as near as possible an estimate of the cost of that thing. We do not treat with two or three or five or ten dollars. That $120 there, or $100——

Mr. KIRBY: $160, is it not?

The WITNESS: $160, it is dropped off there.

5382 Q. But as a matter of fact if you add your estimate of machinery foundations, which is $700, to your $20,460, it makes a total of $21,160?

A. Yes.

Q. Now your machinery foundations are figured out how? Give me that, if you will. One 10 x 20 x 5 equals 1,000 cubic feet; one 10 x 10 x 5 equals 500 cubic feet; one 10 x 15 x 5 equals 750 feet, or a toal of 2,250 cubic feet, which you have assumed to cost how much per cubic foot in reaching your $700 for the value?

A. 100 cubic yards, $7; there is an excessive allowance right there.

Q. Yes, 100 cubic yards at $7.

A. This 100 cubic yards would be 2,700 cubic feet. I guess you have got your $160 right there.

Q. I have not got any $160, you are the one that made these figures up. If you will let me take this just a second?

(Paper handed to counsel.)

Q. Then the difference between the $20.460 and the $21,000, or a little more, is made up, not by contractor's profits, but by $700 which you allowed for the cost of foundations for machinery, is it not?

A. Yes.

Q. Very good. Then do I understand that the contractor's profit of 15 per cent., or whatever per cent. is fair, the contractor's profit is included in the cost price as you have given it of each one of these previous items; that is to say, brick laid, painting and the rest, as you have given them?

A. No.

Q. Then have you got a contractor's profit still to add?

A. The contractor's profit is in that 10 per cent.——

Q. No, you said that was engineering and other expenses, that was frequently added for unfor-seen things.

A. And contingencies.

5383 Q. Now, you do not want to change that and put your contractor's profit into the 10 per cent. in addition to what you first stated?

A. Contractor's profits are divided there into some parts. I say a contractor offered to do that brickwork at even $20, $21 a thousand and he furnishes——

Q. I will ask you a question on which I think you can very easily answer, yes or no. You have given the value of excavation here at a certain figure, $1,370. Is the contractor's profit included in that $1,370?

A. Well, I think you can get a contractor to do it for that, yes.

Q. Well, is it included in the estimate here, in the $1,370?

A. Shallow—no, I don't know as a fair contractor's profit is included in that.

Q. Now, take the concrete, which you have figured at $480, do you mean to say that the contractor's profit is included in that $480? A. What rate is it at per cubic yard?

A. $7, I think.

Q. (Handing paper.) Don't you remember without looking it up?

A. I think it was $7, yes, I think he could do that.

Q. Did you mean to include a contractor's profit in the $480?

A. Yes.

Q. Take the common brick work, $4,760. Did you mean to include the contractor's profit in that?

A. I have had it offered to me for that.

Q. That is not the question, Mr. Edgerton. I shall have to ask the Master to ask you to answer the questions directly.

The MASTER: Yes, Mr. Edgerton, that is a proper request to make. I do not see why you cannot give your mind to these questions. I do not see why you should waste our time by sparring with the question.

The WITNESS: Well, I am not doing more than half the sparring.

5384 Q. Referring to common brick cost, which you have given as $4,760, is your contractor's profit included in that?

A. Yes.

Q. Take the glazed brick, is your contractor's profit included in that?

A. That is a small item.

Q. Well, is it?

A. No.

Q. Paving brick, is the contractor's profit included there?

A. No.

Q. Take the cement floors, $520?

A. I can shorten that up by saying that the contractor's profit, so far as my information goes, will be included only in that brick work, and we will say that concrete work. That would cover a reasonable profit. The balance of it and the smaller items would not, unless possibly the iron work there at the price stated.

Q. What profit do you include in those items for the contractors, what percentage of profit?

A. Five cents a pound for ironwork would include a contractor's profit.

Q. What percentage of the contractor's profit on the price of labor and material to the contractor do you allow?

A. I think that ten per cent. would cover all that would be charged on that kind of work. Five cents for the ironwork would certainly cover it, for checker plate flooring.

Q. Five cents a pound?

A. Yes, sir.

Q. And you would say in percentage 10 per cent.?

A. The proportion would vary there, according to the size of the job.

Q. Did you in the other buildings employ the same unit figures as to value, cost and so forth, which you have given here in reference to this 132d Street building?

A. It would depend on the character of the building. That is a very superior building, compared with most of them.

Q. So that you took lower unit figures in the case of most of the other buildings, did you?

A. Some of those buildings that were of the plainest de-
5385 scription, and I used substantially the same unit for some parts. I would not use that floor plate unit there throughout, no. There is a difference in most of this construction throughout; they are in a different character of building, as you can readily see by looking over them.

Q. Well, you have the same details of the other buildings of the plants, haven't you?

A. The same size of brickwork and coping as applied to that building there at 132d Street would not be applicable to others because it is a superior character of building.

Q. Well, you have the details or some details as to these other buildings, have you not, throughout the plants?

A. Yes.

Mr. KIRBY: I am quite willing, Mr. Mathewson, to offer in evidence the detailed estimates of all these buildings, or to have them marked for identification. They are all here.

The MASTER: Mark them for identification.

Mr. MATHEWSON: Yes, because there are a number that we may not touch at all. I may want to test his method in some building.

Mr. KIRBY: They are all here, and I think that one who is familiar with the subject will be able to make out the method which is used and the unit value. There is a good deal on here which would need explanation; for instance, in this building where the summary of $22,000 led Mr. Edgerton astray in his first testimony, which, I think, he has straightened out.

Mr. MATHEWSON: I suggest they may be marked for identification and then I shall only have one or two questions to ask.

Mr. KIRBY: I will leave here this afternoon an envelope marked with each station, with the calculations of the buildings in it.
5386 There are a lot of other memoranda in these envelopes which I do not care to leave.

Mr. MATHEWSON: The original calculation?

Mr. KIRBY: Yes, and we can have them marked for identification.

Q. Now, I call your attention for a moment to your summary of all the plants headed "Consolidated Gas Company value of all plants, January, 1907," showing a total of $9,367,344.25; that is after the deduction of the depreciation, as you have computed it?

A. Yes, sir.

Q. Now you have added to that, I see, for engineering superintendence and inspection only 3 per cent. Is that intended to include

the entire allowance for general engineering, drawing plans, grading, paving, curbing, sewerage and drain pipes, temporary fences, operating tools and other utensils, water for holder tanks and apparatus required for operation of the plants, as well as miscellaneous extra expenses contingent and so forth, delays in construction due to strikes and one thing and another; is that 3 per cent. to cover all that contingent expense?

A. That does not cover the engineering inspection that the company furnishes.

Q. That is what I mean; all the company expenses in addition to the cost payable to the contractor for installing the apparatus and plants, whatever it is?

A. No.

Q. Let me ask you about this interest during construction at 4 per cent. You assumed that the plants as they now stand could be constructed within less than three years in ordinary course?

A. Two years.

Q. Well, then you take 4 per cent. instead of 5 per cent., assuming that the average would be one year at 4 per cent., do you?

A. Well, that is the time the average payments would become due.

5387 Q. In other words, you assumed a rate of 4 per cent. instead of 5 per cent. for money during construction?

A. Yes—no; I assumed 5 per cent. for the money, 5 per cent. interest on the money, but that it would not require all the money.

Q. No, but if it took two years to complete the plants, that would mean an average of about a year, would it not?

A. Well, a little less. I allowed a little less than a year for the use of the money.

Q. Well, will you tell me how you arrived at your 3 per cent. for engineering, superintendence and inspection, or, in other words, the expenses that the company is put to itself in connection with the plant?

A. I arrived at that when I was examining the books of the company by comparing with the Astoria plant. I saw that there was much less charged up in salaries to the engineering force for that plant than I had any idea was the case. I thought it took a great deal more.

Q. You would have thought about 10 per cent. from your experience was a fair figure for all these incidental engineering expenses?

A. No; when they did it. They do not do the engineering. Mr. Mayer or the contractors' engineers are the men who make all the plans. They do not have anything to do except the general work. There is not a plan that they make up as a general thing.

Q. There is not? You do not think there was any general planning at all to create that great Astoria plant and to provide for the running of the lines, and the filling and location of the tanks and the testing of the ground, and the thousand and one things that you would have to do?

A. Yes, there are a thousand and one things to do, but it is not done by their force. I know the proportion——

Q. Don't you know they were planning for years in the Astoria plant, in reference to the Astoria plant, figuring it out, before
5388 they ever let a contract and called a contractor into it?

A. They stated they were thinking of it for sixteen years.

Q. Didn't you know that they were planning for years, actually preparing the plans, and that it took years to prepare the plans ultimately?

A. No, I know it would not.

Q. Well, you are not able to divide up this three per cent. into any items of cost?

A. That covers more than ever I knew of a person getting from a gas company for general planning, and aside from the contractors and engineers. You understand, of course, all the detail work of planning is done by the contractor's engineers. Do you suppose the holder plans and those things are made by the company?

Q. Do you suppose in laying out the plans of the Consolidated Gas Company that they called upon the contractors to plan or formed their own plans as to the character of plant before they went and asked for bids?

A. No, sir; they called on contractors for their plans every time.

Q. You were not on the inside, I suppose, and you did not know anything about this; this is simply your surmise?

A. I know that is the case right straight along.

Q. Is it not your surmise?

A. No surmise about it. I know the contractors——

Q. Do you know what was done in the case of the Astoria plant of the Consolidated Gas Company, whether it was planned by the company or contractors?

A. No——

Q. Answer my question.

A. I was right in there and saw the figures they charged to the engineering of that plant.

Q. Do you know whether the plans for the Astoria plant were drawn by the company or whether they were drawn by the contractors? Answer that question yes or no.

A. I know the general plans were drawn by the company——

5389 Q. Very well.

A. The general plans, yes.

Q. How about this three per cent., do you include not only the general engineering but also the paving and curbing there?

A. The paving and curbing has been allowed for very liberally in those different plants in the addition made there under specific name; but that $281,000 represents a great deal more money than was paid out for any planning by the Consolidated Gas Company to anybody.

Q. We are not talking about he Astoria plant, this is an estimate which you have made of the value of ten or eleven separate plants on the Island of Manhattan, planned at different times and in the past. Now, you say that three per cent. would cover all the expenses of the company outside of the contractor's charges?

A. Yes, sir.

Q. In all those plants?

A. And more too.

Q. That is your opinion?

A. Yes, sir; that is my opinion. It is based on forty years of experience in the gas business.

Q. It is not based on any experience in New York City in constructing plants here, is it?

A. Why, Mr. Mathewson, I have seen these plans made out by the contractors in each case.

Q. You have seen the plans made out by the contractors for the New York Gas Light Company which was built in 1825?

A. I saw the plans made for a great deal of that apparatus.

Q. Did you see that?

A. The original plans, no.

Q. Did you see the plans made out for the Manhattan Company plant, which was organized about 1830; did you see those plans when that was built?

A. No; but I saw plans from the time I commenced to take an interest in the gas business, and I know absolutely that the planning of details of gas holders, machinery, and even retort settings, and the whole of the individual parts of a gas plant are planned
5390 entirely by people independent of gas companies and outside of them.

Q. I am talking about the Consolidated Gas Company and its plants, meaning the plants of the constituent companies and as they have been improved to date. Have you, in a single instance, seen their plans so that you know just what the plans of the company originally covered?

A. I know a good many of them.

Q. Have you been over one of them?

A. One of them, yes. I have seen dozens of the plans and copied from them.

Q. Of this Consolidated Gas Company?

A. Of this Consolidated Gas Company and these retort house settings and the whole paraphernalia there, I have seen from time to time the plans. I got them when Mr. Farmer made plans, when Mr. Sebatten directed the plans made and on until the time of the Smiths, when the Tessie Demmoto process came in. I saw how they were put in and I state this without any reservation: The engineering of those plants, except the general arrangement and telling where to put pieces, comes from the genius and work of those engineers who are employed by contractors. Now, you will find that is so.

Q. You think that the outside contractors who construct the buildings and plants have to do the sewering and draining of the property?

A. No; I say that is all right, there is a certain general——

Q. They do not have anything to do with the curbing of the street?

A. No.

Q. They do not have anything to do with the original grading?

A. Well, frequently they give plans for that. They give plans for the tanks and gas holders, for the apparatus; for nine-tenths of all expenditure incurred in that work the planning is made by the genius of independent engineers and not the regular company engineers.

5391 Q. Did you see any plans or do you know who made the plans in reference to the laying out of the Twenty-first Street works as they now exist; have you got any information about those?

A. I know in the plans for the Lowe apparatus they had no finger in the pie in connection with it and that is——

Q. If you know as much about that, don't you know that the Twenty-first Street plant was erected under the superintendence of Dr. Humphreys here, and don't you know he was constantly engaged with Chief Engineer Bradley and his assistants for a long time in planning and laying out that plant, or don't you know about that?

A. So far as that is concerned, it may be raising a roof or something like that——

Q. No, my question is clear enough. You pretend to have great knowledge on this. Do you know that which I have just stated, or don't you know it, as to the Twenty-first Street plant?

A. I know that that does not contravene what I say, I do know the very fact that they employed an outside engineer in that case shows they did not do it themselves.

Q. Well, they paid them, not the contractors who put in the machinery, did they not?

A. In some particular cases, yes. In that $281,000 I include all the engineering required for, outside of the special detail plans that are always gotten up by the contractors.

Redirect-examination by Mr. KIRBY:

Q. Mr. Edgerton, outside of the specific apparatus which you have mentioned as that which you consider was designed in detail by the contracting engineer; the three per cent which you have just made reference to, being in addition to the total value of plants, is for the general laying out of these plants, the buildings, and

5392 all work connected therewith, including superintendence and inspection, is it not?

A. Yes, sir.

Q. And am I right in saying that that amount is based upon what you consider proper from your experience and the experience of others which has come to your knowledge in such matters?

A. I have never heard of anybody getting more than that ratio or that proportion.

Q. You have spoken of having made appraisals of certain apparatus, such as engines, pumps and so forth, by taking the price which a contractor would erect them for. Does that also apply to benches, generators and so forth, or were they calculated by weight and the cost per unit?

A. The report benches were calculated out in detail and confirmed

by getting the figures of what that kind of work had been done here for and what contractors were willing to do it for who would do it in good shape.

Q. And you have used in the calculation of work upon these benches and such other parts of the work as you have made reference, as well as upon the buildings and foundations and tanks and holders and all apparatus where a price for a specific apparatus itself was not used, certain costs of material, certain costs of labor, and certain costs of material in place. You have given some of these. Have you a table showing just what units you did use?

A. Yes, sir.

Q. (Handing paper.) Is that it?

A. That is the table.

Mr. KIRBY: I will offer it in evidence.

Mr. MATHEWSON: Let him state it as part of his evidence.

Mr. KIRBY: Very well.

The WITNESS: The cost of labor and cost of material which I used were as follows:

5393 Consolidated Gas Company.

Schedule of prices for *materials*, for *labor*, and for *certain material erected*, the same as given, being those used in appraising value of the plants of the Consolidated Gas Company.

Materials.

Cement, Portland	$1.75 per barrel.
Cement, Rosedale	$1.00 per barrel.
Lime	$1.40 per barrel.
Sand	$1.25 per cubic yard.
Gravel	$1.50 per cubic yard.
Broken stone	$2.50 per cubic yard.
Steel shapes, f. o. b., New York	.01.345 per lb.
Steel plates, f. o. b., New York	.01.895 per lb.
Brick, ordinary building	$7.50 per 1,000.
Brick, pressed	$12.00 to $20.00 per 1,000.
Fire brick, No. 1	$20.00 to $30.00 per 1,000.
Special shapes, blocks and tiles	$1.00 per 100 lbs.
Slate, depending on size and quality	.08 to .14 per sq. ft.
Blue stone, dressed	$1.50 per cub. ft.
Timber—spruce, maple, oak or yellow pine	$20.00 to $35.00 per 1,000 B. M.
Piles	.15 per lin. ft.
Cast iron	2½c to .03½ per lb.
Retorts	$20.00 each.

Labor.

	Per hour.
Bricklayers	$ .70
Bricklayers' laborers	.37½
Rockmen	.20
Drillers	.37½
Drillers' helpers	.18¾
Steam engineers	.35 to .43
5394 Carpenters	.60
Laborers	.15 to .20
Blacksmiths	.37½
Blacksmiths' helpers	.21⅞
Hoisters	.31¼
Teams	.60
Riggers	.40
Steel erectors	.70
Steel erectors' helpers	.30 to .50
Machinists	.40
Pipe fitters	.45
Pipe fitters' helpers	.30
Concrete mixers and barrel men	.31¼

Materials Erected.

Excavation—	
Ordinary earth	$1 to $1.25 per cubic yard
Rock	$2 to $4 per cubic yard
Concrete	$6 to $8 per cubic yard
Brickwork—	
Ordinary brick	$14 to $20 per 1,000
Pressed brick	$20 to $40 per 1,000
Lumber	$35 to $60 per 1,000 ft. B. M.
Steel	3½c to .05 per lb.
Cast iron, rough	.04 per lb.
Cast iron, planed	.05 per lb.
Steel plates	.05 to .07 per lb.
Slate roofing, including sheathing and wood purlins	.25 to .30 per sq. ft.
Blue stone	$1.60 to $2.25 per cub. ft.
Lantern ventilators	$3 to $10 per running foot.
Piles	$6.50 to $8 apiece

Q. Do I understand that the prices which you have given are those which you have ascertained, and which, tested by your own knowledge and experience in such matters, seem to you to
5395 be correct and proper for the material and labor which you have referred to?

A. Not only that, but I took the trouble to consult with people who have done work——

Mr. MATHEWSON: I do not think that is the question. I shall object to this testimony as to third parties.

Q. You can say yes or no to that.

A. Yes. I think it is more than adequate in some cases.

Q. You have referred to the Twenty-first Street plant and have spoken of certain foundations which were mentioned in the schedule and which you did not figure in your appraisal. Did you see any indication of these foundations in the plant when you were there?

A. No, sir. No indication and nothing to stand on a foundation that required the supporting of any weight of any amount. In fact, I saw in a number of cases they were supported on the floors and no indication of any requirement of foundation underneath to support those small articles.

Q. You have also spoken of the piling under certain of the buildings, questioning whether or not they were there. You did, however, in figuring the cost of these buildings, use specifications as given by Mr. Mayer, did you not?

A. Yes, piling was put in where he stated, but I state myself, explicitly, that I do it under protest, for I do not believe there is any piling there.

Q. You have also referred to the amount allowed for painting where such painting was necessary. Do you consider that that is included in the 10 per cent. which has been added to the net cost of buildings?

A. There is no painting to be done of any consequence, except where it has been provided for. The painting of all that apparatus is a thing the company takes care of after the contractors have put it up.

5396 Q. Outside of the apparatus?

A. It goes into their operating expense, if they paint it from time to time.

Q. Outside of the apparatus, in reference to the buildings and such parts thereof as would need painting, do you consider that the 10 per cent. you have added is sufficient to include what might have to be paid for painting if there were any?

A. Yes, that was intended to cover any omissions and contingencies, but if there was any evidence of apparatus requiring painting I think I would have seen it.

Q. Yesterday you were asked by Mr. Mathewson in reference to the Forty-second Street holders and you stated that you could not find the detailed estimate of the cost of those holders. Have you them at hand now?

A. Yes.

Mr. KIRBY: If you would like the details of that, Mr. Mathewson, I will have him put it in.

Mr. MATHEWSON: Did I not ask him about another holder afterwards?

M. KIRBY: Yes.

Mr. MATHEWSON: I understood he said he proceeded similarly in the case of all holders as to price of material and details and so forth. I do not know that I care to ask him any further.

Q. Give us the detailed estimate of that holder?

A. It was commonly found that there was an extreme difference between my estimate and Mr. Logan's and somebody else——

Mr. MATHEWSON: Mr. Marks was the other person.

The WITNESS: Well, Mr. Marks did not pretend to go over those.

Mr. MATHEWSON: Well, he has testified himself as to what he did.

5397 Q. Proceed and give the details.

A. That holder, as calculated by myself, weighs more by the pressure by 7-10 of an inch than as given by Mr. Mayer; in other words, it has a pressure of 5.12 and that calculated out and corrected is equivalent to 188,700 pounds, and I found that in that estimate I took it at ten cents a pound.

Mr. MATHEWSON: That is each holder, is it not?

The WITNESS: It is No. 4 holder; there are four similar holders.

Mr. MATHEWSON: You are referring to the four holders Mr. Logan gave at $120,000?

The WITNES: Yes.

Mr. MATHEWSON: $30,000 each?

The WITNESS: Yes. That holder at 188,700 pounds would be Mr. Mayer's figures, $12,475, and $4,800 for the guide frames and cast iron work that would be $17,225.

Q. For each holder?

A. For each holder, so I think I have allowed there on that $73,900. It comes out at $68,868 according to the memorandum which I used.

Q. For the four how much?

A. $68,868, and including the tank iron work, brings it up to $73,900.

Q. The figure set down in your appraisal?

A. Yes.

Q. In placing the value upon these holders you ascertained the weight in a certain way or by a certain method. What was the method you pursued?

A. I took, by the most accurate gauge I could get constructed, the pressure on the holder, the water pressure; that is an exact balance with the total weight of the moving parts of the iron work of the holder; in other words, the water supports the total weight of
5398 the holder, and by taking the cubic feet of water displaced by the weight of the holder, we have 62.4 pounds, which I have allowed, although that was slightly in excess, which gives quite exactly the weight of the moving parts of the holder with due correction. I have taken into consideration the levity of the gas, that is the difference between the weight of the gas and air and the submerged iron of the holder and also the water in the cups, deducting the water in the cups and allowing for the difference in weight of iron and water and above water. That gives us as accurately as it is possible to calculate it the weight of the moving parts of the holder, which includes all the sheeting and all the internal

frame work and the guide rollers and everything connected in fact with the moving parts.

Q. Now, in calculating the weight of the framework did you assume the thickness of material to be as stated, or did you, in some instances, measure it for yourself?

A. In the case of where it could be measured, for instance, where there was a hole drilled in any of the columns so as to admit of measurements, I measured it. I found some of the holders were girded with steel columns of one-half inch thickness, and in some cases they were cast-iron and open-work framing like that of the Forty-second Street holders. I believe in one or two cases cast-iron columns, which I stated I calculated at one inch in thickness, but I find I calculated one and one-quarter inch.

Q. Did you make these measurements in a rough way or were they of such character as were proper in an operation of that kind?

A. I made them as carefully as they could be measured, particularly the weight of the gas holder itself.

Q. In measuring the frame-work did you measure that, did you use a rule?

A. I measured them by caliper and mechanic's steel rule, and in the cases of thickness of iron and steel, Mr. Woodward in one
5399 case, went inside of the gas holder column with considerable difficulty and got the thickness of the thimbles by which they were held together, and in every case I think I have made full allowance for the weight of those holders in framing and also in the prices applied.

Q. Your attention has been called to certain statements in your appraisal where you state the value as per Mayer or per Mayer. Now, I take it, that when such statements were made it was not necessarily because you agreed with Mr. Mayer, but because you either lacked time or opportunity of information to value the apparatus yourself; is that so?

A. Yes, throughout, as stated as per Mr. Mayer, it was on apparatus that I had not made estimates on. I could not for want of time, as I stated in undertaking it, I should have time to inspect and calculate out only the larger parts.

Q. Referring to the generator and boiler house, the schedule of apparatus of the Forty-fourth Street station, I note, two 8-foot 6 U. G. I. Co. sets, which you give a value of $18,000; for 12-foot U. G. I. Company sets to which you give a value of $47,000. Underneath these items I see one condenser and so forth, and then down three lines, total for two above items, no depreciation, $72,438. Am I right in stating that the inclusion of $72,438 is an error and that the appraisal of the benches themselves is as set down immediately above that?

A. Yes, sir; that is an error, the insertion of $72,438.

Q. I used benches where I should have said U. G. I. sets?

A. Yes.

Q. You have testified that you figured the value of your yard connections, so-called, by a formula which your experience taught you to be the correct one. Would it not have been possible for you

to have figured these connections from the information in the testimony or in the schedules?

A. No, sir.

5400 Q. Why not?

A. Why, in reference to connections it says so many feet from such a size down to another size, that is lumped altogether, except in certain cases of the holder stations.

Q. Does it state the number of each size pipe in detail?

A. It states 22,525 feet of that particular Fourteenth Street station. He has given the number of tons but——

Q. Now, other stations, is the weight given?

A. Not always. It is generally simply the aggregate number of feet. For instance, the Twenty-first Street station, cast iron pipe, 18 to 36 inches in diameter, 6,624 feet; also steel-riveted, 16 to 36 inches, 4,772 feet; then again, wrought iron pipe, 1½ to 12 inches, 1,550 feet.

Mr. MATHEWSON: Are you referring to the testimony or to the schedule which you had?

Mr. KIRBY: The schedule and testimony are both the same. This is for the Twenty-first Street plant.

Q. This value which you have given for the yard connections you consider ample for the plant of the usual kind and character mentioned, would you not?

A. Yes, sir, and in many cases that cost of the pipe at the rate of $6.50 per thousand cubic feet daily capacity is nearly as great as the cost of the whole apparatus, generating plant; and in Mr. Mayer's estimate the cost of connection would much exceed the cost of a generating plant.

Q. The value which you have given would take care of all pipe connections, valves, etc., which would be necessary for the works of the various kinds, would it not?

A. Yes.

Q. And if there should happen to be other pipes than those which you have figured up in such plants, would you consider that

5401 such valves, pipes, etc., were necessary for the proper operation of that plant?

A. No, sir; they probably got in there due to the duplication of parts, owing to the constructing and reconstructing and changing the process of gas-making.

Q. You have given to Mr. Mathewson a general idea of the number of days which you spent inside these plants. Was this the only time which you spent in examining them? Did you make any other examinations except those you mention?

A. Well, I don't think that it gives an adequate idea of the time I spent in the plants, no, by his hour to hour business. There were a number of plants that I visited quite a number of times, and I had with me two assistants to go over portions of it, and I do not think that the timing of Mr. Mathewson really represents all the time I was around those plants; and I was there at times when they did not know anything about it, that is to see about gasholders, whether they were in use or not.

Q. You mean by that at times other than those mentioned you saw the plants from the outside of the walls?

A. Yes; the gasholders, in regard to whether certain gasholders were in use.

Q. Did you yourself, or did you have any photographs made to assist you in the examination of the kind of apparatus, holders and what not?

A. I did. I had some views taken and was also assisted by a plumber to get at the pressures of the gasholders.

Recross-examination by Mr. MATHEWSON:

Q. You stated correctly yesterday the amount of time you spent inside the plants, in answer to my question, Mr. Edgerton?

A. I thought in the main that comprehended the time inside. I did not entirely agree with it. I did not tabulate it in any
5402 way that would give me an exact idea, but I stayed there all the time I wanted to.

Q. That is another thing. I called your attention yesterday to the hours which I understood you spent in the plant, and I understood you to say that was substantially correct. That was right, was it not, inside the plants?

A. I did not have any definite memorandum or data to contradict it.

Q. That accorded with your recollection as you stated it yesterday, did it not?

A. I did not remember anything to the contrary.

Q. Do you want to change your testimony of yesterday?

A. No.

Q. At this Forty-second Street holder, where there was such a difference between you and Mr. Logan and the others, you say that you took the pressure and you found the pressure higher than that given by Mr. Mayer; that would indicate, as I understand you to say, a greater weight of material than he assumed?

A. Yes.

Q. In other words, the higher the pressure is the more weight of material it indicates in the holder?

A. Certainly.

Q. Per unit?

A. Yes.

Q. Where did you take that pressure, where did you apply your pressure gauge?

A. I went three times; twice I applied it at the ground level and once I crawled up on top of the holder and took the pressure on top, and I took it on the inlet pipes and on the outlet pipes also.

Q. What was the difference between the top and the ground in pressure?

A. There was, I think, about three-tenths or four-tenths; three-tenths.

Q. And which was the higher?

A. The pressure at the top of the holder. I took that pressure be-

cause that agreed with the pressure of the correction for levity of the gas.

5403 Q. You found, then, the weight in each of the four holders to be 188,700 pounds?

A. Yes.

Q. What did you compute to be the weight of the guide frame of this holder, including the columns?

A. That guide framing I took at one-third the weight of the holder. I computed that at one point at one time, but I have not the computation here.

Q. And the figures you are giving here are your general conclusions that it should be one-third the weight of the holder?

A. Yes, I think that would be correct, although I did not——

Q. You did not, then, figure each girder and all the trusses in detail?

A. I did figure that at one inch thick. That is cast iron with openings. I measured that and similar ones also at the——

Q. You have the details here?

A. No, I have not come across the detail of that figure.

Q. As to the weight of pipe and connections, what did you figure that to be for the holder?

A. That came in as the difference between $68,868 and $73,000.

Q. Yes, but what did you figure to be the weight of the connections?

A. I don't remember.

Q. You say you took ten cents as the price per pound for the entire construction?

A. I did in the first instance, but made a correction on that and took it at 6.6 cents.

Q. Yes, which is the unit you have used in computing your $73,000 value?

A. It is the 6.6—that is, it comes up to that, barring the weight of the tank iron and inlets and outlets.

Q. What do you mean by barring those?

A. I mean those are separate items, represent the value of them. I have only the value of them here which represents the difference between $68,868 and $73,000.

5404 Q. I understood you to say yesterday that you computed the holders generally upon the same general theory as to price of material and the weight of guide frames?

A. No; they were computed in different ways. There was some of those—the shells were all computed on the same basis.

Q. 6.6 cents?

A. 6.6, except in one case it was 7.1 cents.

Q. Do you remember which one that was?

A. That was the one in which Mr. Mayer gave his high figure on the construction. I have forgotten which one it was.

Q. Sixty-fifth Street?

A. Possibly.

Q. Well, that was the one with the many braces, was it not, the patented construction?

A. Yes.

Q. And as to guide frames, as a rule you consider them one-third the shell?

A. No; the guide frames are computed by weight of material in all instances where I could and in others the weights were duplicated. For instance, where a holder of a Phoenix column figured out to as much weight, it was adopted on the other holders of tho same construction.

Q. What proportion of these were you able to or did you take actual measurements by reason of finding holes and otherwise?

A. I got measurements of pretty nearly all of them, I think, except one.

Q. Actual measurements of thickness of iron and height?

A. Yes, and diameter of columns and length, and so on.

Q. Did that include girders and diagonal braces as well?

A. Yes.

Q. In each one?

A. Yes; that is, the measurements I took. I did not calculate them all out.

Q. In what proportion of the guide frames here do your figures represent actual computations of weight and so on from actual measurements of columns, girders, trusses, braces, and so forth?

A. I took measurements of nearly all of them. I say they
5405 are not calculated all out. Some of them, they are very intricate.

Q. I ask you what proportion were calculated out and made the basis of the figures of value you present here now; was it a quarter of them?

A. I cannot just say the proportion. I think I stated in the testimony right along where I took a proportion yesterday when I was testifying.

Q. Well, but I did not go over one-tenth of them yesterday, so you could not have stated. I ask you now, what proportion of the whole would you think you have calculated out and made the value here given the result?

A. Do you want me to go over the whole list?

Q. No; I merely asked you what proportion?

A. I think over two-thirds of them were calculated out. I think some of those columns were the only ones left out.

Q. And in two-thirds of the cases where you have given values of holders, does that include the value of frames based upon such calculation and not based upon the theory that the frame was one-third as much as the shell?

A. Yes; I think that I gave the calculations on at least two-thirds. I could divide it better by saying that the column guide frames were not calculated in every case like the other guide frames. They were taken at a proportion of the whole.

By Mr. KIRBY:

Q. You did calculate out certain guide frames, did you?

A. Yes.

Q. And where you say that the column guide frames were not calculated, what do you mean?

A. I mean that in going around the first time, and, in fact, the second time, I was not able to get at the measurement of those
5406 guide frames; and then I discovered that some of them had holes drilled in them, by which I could get the thickness of the iron, and then I calculated them out.

Q. Then you did, in fact, calculate them?

A. I calculated out, I suppose, two-thirds of those guide frames.

Q. And where you did not take measurements of every small part of that guide frame, what did you do?

A. If it did not have a counterpart in some other guide frame of the same construction, I calculated it as a proportion of the weight of the whole, taking Mr. Logan's, I think it was, proportion and my own figures as a guide as to what proportion the guide frame would bear.

Q. I do not mean the guide frame as a whole, but I mean the small parts thereof; you did not measure every part of every guide frame, did you?

A. No, not necessarily. One column or one girder or one bay or rail of a guide frame establishes the whole business; if it had sixteen columns, and one column calculated out so much, together with its girder and cross and guide rails and the wall plates, we multiply that by the number of columns.

Q. But in this two-thirds of these frames, which you did calculate by measurement, you did measure the details of one bay, or whatever you call it, to get the unit, and then multiplied that by the number of those parts which should be in the total frame, did you not?

A. Yes; which are duplicated.

Q. In those which you did not calculate in that way you took as the cost of the framing one-third the cost of the shell or other parts of the holder?

A. Yes.

Q. That is one-third of the cost and not of the weight?

A. Yes.

Q. And where you have mentioned, in reference to the Forty-second Street holder, one-third the weight, you mean one-third the cost?

A. Yes.

5407 By Mr. MATHEWSON:

Q. You had a man to help you with these measurements, did you not?

A. Yes, sir; several men.

Q. How many, on the average, just for the measurements, I mean, who did the measuring?

A. Three.

Q. You, yourself, and three men?

A. Yes, sir.

Q. You did not confine yourself to measuring; what proportion of your time did you put in in measuring, or did they put in while they were in the plant?

A. Oh——

Q. A small part, wasn't it?

A. A small part, in taking the pressure, sometimes we were delayed in it, climbing up to the top of the holder would make some delay.

Mr. MATHEWSON: I have nothing further.

Mr. BURR: I have only one thing to call to the Master's attention. On page 4,284 of the testimony, the stipulation which was made between the city and Mr. Mathewson regarding deeds and grants, we made mutual concessions, and the language on that page is, you say: "In view of that, and as it will save us the trouble, I think we will withdraw, and I do withdraw the objections to these grants. It should be maps and grants. Have you any objection to that?

Mr. MATHEWSON: No, I have no objection.

Mr. BURR: Will your Honor take judicial notice of the distances on the East River and North River, or will that be the subject of a stipulation? Will it be conceded that a distance of two miles north from Corlear's Hook on the East River extends to and above Twenty-third Street, East River, and that the distance four miles north of Bestavers Killitje at or near the foot of Charlton Street extends to and above Forty-sixth Street, North River? This concession
5408 is asked for, for the reason that there is nothing in the case to show the distance of each river to which the Letters Patent of 1807 extend northerly from the southerly point mentioned in the said Act. As a matter of fact, this distance extends on the East River pretty close to Thirtieth Street, and on the North River within a couple of blocks of Seventy-second street, as scaled on the city's map.

Mr. MATHEWSON: As to the fact, there will be no difficulty about that, but I cannot concede this because I don't know it.

The MASTER: I cannot take judicial notice of it, but I assume if one of Mr. Mathewson's engineers happens to know about it, he will probably concede it.

Mr. MATHEWSON: Yes, you arrange with Mr. Mead and Mr. Booraem about that.

The MASTER: I understand the defendants' case is closed now?

Mr. KIRBY: So far as the Attorney General and the State Gas Commission and the District Attorney of the County of New York is concerned, it is closed.

Mr. BURR: The city rests.

The MASTER: Then according to our discussion the other day, I understand you want to have a recess until Monday, the 14th instant, at 11 a. m.

Mr. MATHEWSON: Yes, that will be the four days which the Court seemed to think was fair.

Adjourned to Monday, January 14, 1907, at 11 a. m.

Last Exhibits:

Complainant's 270.
State's OOO.
City's 136.

5409 UNITED STATES OF AMERICA,
Southern District of New York, ss:

I, John A. Shields, Clerk of the Circuit Court of the United States of America, for the Southern District of New York, in the Second Circuit, do hereby Certify that the foregoing pages, numbered from 4537 to 5408 inclusive (Vol. 7), contain a true and complete transcript of the record and proceedings had in said Court, in the cause entitled Consolidated Gas Company, Complainant, Appellee, against Julius M. Mayer, as Attorney General, *et al.*, Defendants-Appellants, as the same remain of record and on file in my office. (Vol. 7.)

In Testimony Whereof, I have caused the seal of the said Court to be hereunto affixed, at the City of New York, in the Southern District of New York, in the Second Circuit, this 15th day of May, in the year of our Lord One Thousand Nine Hundred and eight and of the Independence of the said United States the One Hundred and thirty-second.

[Seal of U. S. Circuit Court, South. Dist. New York.]

JNO. A. SHIELDS, *Clerk.*

[Endorsed:] United States Circuit Court of Appeals for the Second Circuit. —— —— *vs.* —— ——. Transcript of Record from the Circuit Court of the United States for the Southern District of New York.

5409½ Circuit Court of the United States, Southern District of New York.

CONSOLIDATED GAS COMPANY OF NEW YORK, Complainant,
vs.
JULIUS M. MAYER, as Attorney General of the State of New York, WILLIAM TRAVERS JEROME, as District Attorney of New York County; FREDERICK E. GUNNISON, JOHN C. DAVIES, and LUCIAN L. SHEDDEN, Constituting the New York State Commission of Gas and Electricity, and THE CITY OF NEW YORK, Defendants.

Before Arthur H. Masten, Special Master.

JANUARY 14, 1907.

Met pursuant to adjournment.

Present: The Master, Mr. Mathewson, Mr. Burr, Mr. Page, Mr. Kirby.

U. S. Circuit Court, Southern District N. Y. Filed June 24, 1907, John A. Shields, Clerk.

5410 Mr. BURR: Professor Bemis has recovered his health and is here from Cleveland. He calls my attention to the fact that a number of corrections should be made in his testimony. I have sent a copy of the corrections to Mr. Mathewson and will give him a copy of some additional corrections to which the Professor has called my attention this morning. I merely state this, so that the figures on which Mr. Mathewson may base his rebuttal shall be correct. I explained the matter to Mr. Mathewson over the telephone, and I think he understands the situation.

Another thing I want to suggest is this, that inasmuch as this is to be rebutted, to save time and for the convenience of all of us, the particular testimony which is to be rebutted should be called specifically to the attention of counsel and the witness. That is, I mean, the record has grown so immense that it would be well to call attention to the page of the testimony which you seek to rebut.

Mr. MATHEWSON: I do not know that I can do that in all cases. I can in many cases, but a good deal of the testimony for the defendants is so general and from so many witnesses that it would be, I think, not of any advantage to do that. For instance, on the subject of pressure and one thing and another.

Mr. BURR: Well, wherever it is possible I think it would be to the advantage of us all if that could be done.

Mr. MATHEWSON: Yes, I will do what I can in that regard, of course.

HERBERT J. LONG, called as a witness in rebuttal in behalf of the complainant, being duly sworn, testified as follows:

Direct examination by Mr. MATHEWSON:

Q. Where do you reside, Mr. Long?
A. Pittsburg.
5411 Q. With what corporation are you connected?
A. The Monarch Water Heater Company.
Q. Is that the manufacturer of the apparatus that is generally known as the Monarch Water Heater?
A. Yes, sir.
Q. Does the business of that company cover the United States generally, or a section?
A. The entire United States.
Q. A large business, is it?
A. Why, it is considered such; that is, in comparison with other gas appliances.
Q. How long have you been secretary and treasurer of the company?
A. I have been since June 1st, 1906.
Q. You have been in the business for seven or eight years?
A. Not quite seven; six and one-half years connected with the company.
Q. To whom does this company sell its apparatus, to direct customers or the retail trade?
A. In most cases direct to customers, by means of agents in the field, our own representatives.
Q. Individual consumers of gas?
A. To individual consumers; in the larger cities, where it will pay to have a representative, we sell direct.
Q. Is this apparatus to be operated by gas?
A. Exclusively with the use of gas.
Q. Now, have tests been made as to the pressure at which this gas water heating apparatus shows its efficiency and below which it is not efficient?
A. Yes, and that has been necessary——

Mr. BURR: Objected to. What connection has that with the matter in hand?

Mr. MATHEWSON: You have introduced testimony here by Mr. Edgerton and by Professor Hallock and some others, particularly Mr. Edgerton, in this regard, that the most efficient pressure is under one inch.

5412 Mr. PAGE: For illuminating purposes?

Mr. MATHEWSON: No; and for other purposes too; that a range and other apparatus can be operated at a pressure under one inch satisfactorily.

The MASTER: I will allow it.

Mr. BURR: Exception.

The WITNESS: Your question was whether we had made tests?
Q. Yes.

A. I will answer yes, and that it has been absolutely necessary in our business to make tests in every locality, not only in cities, but in parts of cities where we develop the sale of heaters, on account of the fact that lack of pressure destroys the efficient operation of the machine.

Q. What do you find to be the minimum pressure required for the operation of that apparatus?

Mr. BURR: Objected to as incompetent, irrelevant and immaterial.
The MASTER: Same ruling.
Mr. BURR: Exception.

A. We find that we will not install knowingly on lines having less than twenty tenths.

Q. That is, two inches of pressure?

A. That is two inches of pressure.

Q. Taken where?

A. Taken inside the house. We usually take our test on any gas bracket that is available in the house, inside the meter.

Q. And at a point where it is intended to instal the apparatus?

A. As close to that as it is possible to get. We also specify that pipes shall be run of a certain specific size or the guarantee does not hold good with the pressure.

Q. Have the tests which have been made been confined to one place or have they been made over the country generally?

5413 A. Covering a period of seven years, they have been made all over the country by our representatives and in many cases experts sent out from the factory.

Q. And if after an apparatus is installed, less than two inches of pressure develope at the apparatus, what is it necessary to do? Can you operate the apparatus efficiently?

A. Well, it is necessary to operate the apparatus and get the highest efficiency we can get from a lower pressure, and if the customer is satisfied with it, he retains it. If, however, it is not coming up to the guarantee, in many cases it has been necessary to remove the heaters.

Q. Do you guarantee where a pressure of less than twenty tenths is obtained?

A. We do not guarantee the apparatus to come up to its best service.

Q. As a matter of fact do you know that it does not.

A. Yes, we know it does not or we would not make such an absolute ruling.

Q. Have you taken any tests in the City of St. Louis as to high and low pressure at the same time?

A. I have personally done that on account of variations in pressure. I have personally made a trip to St. Louis on that account and found variations of from fifteen——

Mr. PAGE: What relevancy has it?
Mr. MATHEWSON: Let him finish it, and I will tell you.
Mr. PAGE: Objected to as wholly irrelevant and immaterial.
The MASTER: I cannot tell that yet. I will let him proceed.
Mr. PAGE: Exception.

The WITNESS: I found—I will not say simultaneously, but as fast as I could get from one point to another, a difference of
5414 fifteen to eighteen tenths and other places as high as forty tenths.

Q. That is fifteen tenths and forty tenths at practically the same moment?

A. Yes, as fast as I could travel from one point to another.

Mr. PAGE: I renew my objection and move to strike out the answer.

Mr. MATHEWSON: Mr. Edgerton testified that as to the City of St. Louis particularly the pressure could be kept with certain limits there, and in reference to the high pressure system of mains which he said was there and which was similar to something which he advocated, and I am showing that the pressure even there is not between the limits which the law here requires. He was the one who brought in St. Louis.

Mr. PAGE: I do not remember any testimony by Mr. Edgerton as to the pressure system of St. Louis.

Mr. MATHEWSON: He testified that a high pressure system was in force in St. Louis. I think it was from him, or one of the other witnesses, certainly.

The MASTER: I will let it stand for the present without prejudice to move to strike it out later if at the close of the case it should transpire there is not any connection established.

Mr. PAGE: Exception.

Q. In the various tests which were made, what was found to be the most economical pressure for the operation of the water heater.

A. Well, we have found the higher the pressure the greater the economy and the operation of the heater.

Q. That is, there is less gas required to produce the heat?

A. There is less gas required to produce the desired heat; to produce the desired temperature; for instance, in Los Angeles
5415 we have found where they carry as high as forty tenths almost constantly, we get the best results, the most economical result from the water heater.

Q. What is the character of St. Louis as to elevation, etc., and other characteristics governing the control of pressure?

A. I have not statistics, but it struck me as being a particularly level city. I go there frequently; I should think it would be exceeding- favorable.

Mr. KIRBY: I move to strike that out.

The MASTER: Same ruling.

Mr. KIRBY: Exception.

Q. Has your company any connection with any gas company?

A. None whatever.

Mr. MATHEWSON: That is all.

Cross-examination by Mr. PAGE:

Q. What is this water heater which you manufacture, what is it used for?

A. It is an apparatus which is composed of a series of copper coils through which the water passes, under which is placed a Bunsen burner using gas, and it is designed to supply domestic hot water to the various fixtures in a house or apartment or building, and it is operated automatically.

Q. That is, when you turn on the water it turns on the gas?

A. It automatically turns on the gas and heats the water instantaneously as it passes through the coil.

Q. And what you use is a Bunsen burner?

A. We use a Bunsen burner.

Mr. PAGE: I do not think we need to ask anything else. I suppose it will be conceded that Bunsen burners will operate
5416 better under a high pressure than under a low pressure.

The WITNESS: Might I make a suggestion as to another reason why we required the higher pressure?

Q. Yes. Anything that is peculiar to this apparatus.

A. Well, it is possibly peculiar to this apparatus, and that is that we find in the operation of the heater, the use of the gas with the heater, if the pressure is too low, it tends to pull upon the main in such a manner that we would not get proper service, so if we have low pressure we are utterly unable to operate the heater. Many times we are unable to operate it for any service if the pressure is low, and other times it will operate with poor service.

Q. How did you make the tests which you spoke of having made yourself?

A. We use a gauge and attach it to the ordinary cocks or gas bracket that is usually in the basement.

Q. Are you an engineer?

A. Well, I had no college degree as an engineer. I am a mechanical engineer and have designed several improvem-nts to the heater and have taken out several patents on them, and studied—I spent about three or four years after leaving school on survey work and things of that kind, but have not a college degree.

Q. Does this apparatus have a pilot light that is burning all the time?

A. Yes, it has a constantly burning pilot.

Mr. PAGE: That is all.

Mr. BURR: No questions.

Redirect examination by Mr. MATHEWSON:

Q. What is a pilot light?

A. Well, my definition of a pilot is a small jet which is
5417 burning constantly for the purpose of igniting the main burner when required.

Q. A very slight——

A. The smaller the consumption the better for us; we aim to turn it down as low as we possibly can.

Q. It burns half a foot an hour or——

A. From a minimum of half a foot an hour it often runs as high as a foot an hour.

Q. Referring to Bunsen burners, are not the Bunsen burners you use of the same principle of the Welsbach and Bunsen burners used in gas stoves?

A. It is exactly the same principle, we use a vertical tube.

Q. The air mixed with gas in certain proportions?

A. Yes.

Q. Do you know any reason why the operation should not be the same as to pressure?

Mr. PAGE: That is objected to. I do not know that he knows anything about it.

The MASTER: I will allow it.

Mr. PAGE: Exception.

A. From my personal experience and others I should judge that the same condition would hold good in both cases.

Mr. MATHEWSON: That is all.

COLIN C. SIMPSON, recalled in rebuttal on behalf of complainant.

Direct examination by Mr. MATHEWSON:

Q. You have testified before in this case, have you?

A. I have.

Q. Will you not at the outset state somewhat more at length than you have heretofore, your experience in the business of laying
5418 gas mains, and your knowledge of the condition of sub-surface structures in New York City.

Mr. PAGE: I think he has testified very fully.

Mr. MATHEWSON: I do not think he has testified quite so fully as he can.

A. May I read this right off (indicating paper)?

Q. If that is what you want to say, yes.

A. I have made a specialty of the business of main and service laying for twenty-eight years (four years in Vienna, Austria, laying water mains and twenty-four years in Manhattan). Have personally watched the exposing of approximately 90 per cent. of the Consolidated, New Amsterdam, Mutual and Standard mains. Have supervised the laying of the greater part of the Consolidated Gas Company's mains. Also watched the laying of practically all of the New Amsterdam and Standard mains, and about 30 per cent. of those of the Mutual. I have watched the building of underground telephone and electric light subways from their very inception. I have also watched the laying of all large water mains—30-inch, 36-inch and 48-inch—since 1889. And the building from start to finish of the Rapid Transit Subway. I have kept records of all mains laid by other gas companies for the last seventeen years. I have watched the laying of all mail tubes and the construction of the cable and underground trolley systems of all surface railroads, also

the excavations for the Pennsylvania and New York Central Terminals.

I designed and had laid under my personal supervision the 48-in. gas main on Avenue A, between sixty-second and seventy-first streets, New York City, which (with the exception of the 60-inch gas main in Long Island City) is the largest gas main in this country
5419 to-day; and in conjunction with our Chief Engineer, Mr. William H. Bradley, designed the 60-inch gas main in Long Island City, from our new Astoria plant to the tunnel crossing the East River under Blackwell's Island and personally supervised the laying of same. This 60-inch main is three miles long, is the largest gas main in the world to-day, and is now being successfully operated. This main was laid under extreme conditions; many of the streets through which it passed were not even graded, necessitating in some places going down to a depth of twenty-five feet, and in other places making "Fills" of from ten to fifteen feet high. At Broadway and Van Alst avenue it was necessary to go under a large trunk sewer——

Mr. PAGE: I suppose all those mains laid over in Long Island——

Mr. MATHEWSON: He is showing his experience.

Mr. BURR: Yes, and he has made statements as to the operations of the mains meanwhile. He says it is now being successfully operated, and I think that is hardly rebuttal. It is something we will have to find out about still more.

The MASTER: He may proceed.

The WITNESS (continuing): At Broadway and Van Alst Avenue it was necessary to go under a large trunk sewer, and we here reached a depth of 29 feet and had to contend with tide water and a live underground stream. In crossing Sunswick Creek it was necessary to provide large culverts to take care of the tidal flow of the Creek.

There has not been a single sub-surface structure of any consequence constructed on the Island of Manhattan during the last seven-
years which has not necessitated my rigid inspection, as there
5420 are probably no streets in Manhattan which do not contain at least one gas main, and to protect these it is necessary for us to most carefully watch all underground work.

In fact, I can assert that I have a better general knowledge of sub-surface conditions in Manhattan than any other one person.

Q. Are the estimates which you have made and which you are producing to-day based upon theorizing, or are they based upon your own absolute knowledge and experience?

A. My absolute knowledge and experience and from actual data of cost that I kept.

Q. Now, I understand, Mr. Simpson, from your previous testimony that the mileage of the mains of the Consolidated Gas Company, the details of sizes, is kept in the books of the Consolidated Gas Company?

A. Yes, sir.

Q. I don't mean the maps, of course, but the books and records?

A. The books.

Q. And whenever any main is laid, has your department a record of that laying, including the length of the main and the size and so forth?

A. Yes, sir.

Q. And does it report them to the Accounting Department after laying that main?

A. Yes, sir.

Q. How often?

A. Once a month.

Q. And those reports then are entered in the Accounting Department, are they?

A. They are.

Q. From the original records which you used on it and sent up?

A. No; they are entered in the original record in my department, and the data is given to the Accounting Department from my record.

Q. You say that since the formation of the company you have been over and seen at least 90 per cent. of the present main mileage of the company. Have you ever found an instance where the
5421 main, as disclosed on the records of the company, was not found in the street when you came to uncover that place?

A. Never; not in any one single case.

Q. And is it your judgment, therefore, that the records of the company are correct as to mains?

A. It is, sir.

Q. Have you ever had any report from any of your superintendents or any men employed by you that any main which appeared on the records of the company was not found when they were uncovering the street for the purpose?

A. Never.

Q. Where is the distance of the main from the curb recorded on the maps or in the records of the company?

A. On the books of the company, not on the maps.

Q. It does not appear on the maps, does it?

A. Doesn't appear there at all.

Q. How about the depth and the exact measurements between given points?

A. All on the books, not on the maps at all.

Q. None on the maps?

A. No, sir.

Q. How and when are mains placed on the maps?

A. Well, as soon as reports are received they are placed on the books, and as soon as placed on the books they are put on the maps.

Q. Are they put on the maps from the records of the company, or are the records of the company made up from the maps?

A. No; they are put on the maps from the records of the company.

Q. So that as between the maps and the records of the company, if there was a divergence, which would be correct?

A. The books would be correct.

Q. Now, when you send up to the Accounting Department a record of a main, do you give any detail or do you have any detail as to its length and the bounds, and as to those used and that are not used and all that?

A. Yes, sir.

5422 Q. And are those records kept?

A. Yes, sir.

Q. And is it possible for a main to get on the books of the company that is not actually laid?

A. Absolutely impossible.

Q. Now, in case of a fire or other accident, where would you go to get the detail of the main as to distance from the curb, the exact length, the depth, etc.?

A. To the books.

Q. Not to the maps?

A. I would go to the maps first to see what size main was on that side of the street, and then I would go to the books to find the location of it, distance from the curb, depth, etc.

Q. What use, then, do you make of maps such as the company keeps and such as were examined by Mr. Marks?

A. They are used for ready reference as to what size of mains are on certain streets and what side of the street they are on; only for that.

Q. Reference was made to your testimony in this case where you stated that the maps were correct, or you believed the maps to be correct. Do you remember your testimony in that regard?

A. I remember being asked if the maps were correct, and I said yes.

Q. Will you explain a little further to what extent you intended to be understood?

A. Well, I mean to say that they are correct. I did not see anything incorrect about them. I do not say they were drawn to scale or anything of that kind, but they were correct in so far as any mains that are in the ground are concerned, and there is nothing on those maps that does not belong there.

Q. And that was the extent of your meaning when you made that statement, wasn't it?

A. Yes, sir.

Mr. BURR: I hardly think that that is proper rebuttal, to have him qualify now, at this late date, a positive statement which
5423 he made in the beginning of this inquiry and upon which we relied and upon which we based our application for an examination of those maps, relying upon the truthfulness of the statement which he made as early as page 339 of the record.

Mr. MATHEWSON: Oh, you made your examination after he stated and I stated over and over again, in reference to these maps, just what he is now testifying to.

Mr. PAGE: The State did not rely upon the accuracy of any of the statements of Mr. Simpson.

Mr. MATHEWSON: They are quite accurate.

The MASTER: Proceed, gentlemen.

Q. Do you wish in any way to modify or qualify the previous statement that there were eight hundred and twenty-two miles of mains at the time you testified?

A. No, sir.

Q. Now, let us refer to the maps which Dr. Marks examined. The maps on which the company keeps its mains indicated are ordinary insurance maps, are they not?

A. Insurance volumes, yes, sir.

Q. And do they have a scale indicated on the map?
A. They are supposed to be drawn to scale.
Q. Have you examined the maps to see whether they agree with their own scale?
A. I have.
Q. Do they agree with their scale?
A. No, sir.
Q. Did you find in any instance that they agreed with your scale, where you measured?
A. No, sir; not a single instance.
Q. Was the actual distance longer than it showed on the map or shorter?
A. Shorter in every case.
Q. You mean the map showed a shorter distance than the actual distance?
A. Than the official measurements.
Q. So that their measurement would show less mains than actually existed?
A. Yes.
5424 Q. Now, have you examined these schedules and charts as presented by Mr. Marks, beginning with City's Exhibit 92, and from there continuing down to City's Exhibit 103, and perhaps there may have been other numbers that I have not mentioned, but I refer to all these schedules.
A. I have gone over them, yes, sir.
Q. Gone over parts of them?
A. Yes, sir.
Q. Will you state whether you found inaccuracies in those schedules, and if so, state in detail the character of the inaccuracies.
A. Why, the inaccuracies are so many that if I am allowed I will have to read them off, they are so many. In the first place, as before stated, the maps do not agree with the scale given. In every instance observed by me they are shorter than the official lengths. All the mains on five complete maps, Nos. 118, 119, 120, 121, 122; of Volume 6; have been entirely omitted.

In taking some of the volumes and comparing pages at random, there are numerous mains on the maps which do not appear at all on Prof. Marks' Exhibits.

There are also numerous cases where the lengths, as given by Prof. Marks, are shorter than actually shown, on the maps measured, even measuring on the maps themselves, according to their own scale.

There are also a number of instances where the sizes, as given by Prof. Marks, are incorrect; a 30 inch main is stated where it should be 36 inches; 3-inch main is stated where it should be 6-inch, 4-inch main given where it should be 8-inch, etc., etc., etc., the error in every case being against the company.

As the mains are not placed upon the maps to scale, this would affect the measurements given at every point where the main ends at its connection with the transverse main, because of the
5425 varying distances from the curb. In most every instance the mains are at a greater distance from the curb than would be indicated by the map. In considering the total number of such

cases, the actual increase in length over that scaled would be an appreciable item.

In addition to the errors above noted, numerous mistakes may be found in the exhibits themselves: of which the following are instances:

Mains entered on the Detailed Sheets, but entirely omitted from the Summary Sheet and, therefore, not included in the addition, or in the figures appearing on Page 4605 of the present testimony.

Mains appearing on the Summary Sheets from 50 to 1,000 feet short of their lengths as given on the Detailed Sheets.

Mains appearing in a column of the Summary Sheets which have not been totaled and, therefore, not included in the figures appearing on page 4605.

Mains appearing on the Detailed Sheets under a certain size, but appearing on the Summary Sheets under the heading of a Smaller Size.

Mains appearing on the Detailed Sheet as disused, when the main as described is shown on the map as in use, and should be included with the active main.

Cases when the active and disused totals appear on the Detailed Sheet, but the disused has been transferred to the summary Sheet and added in with the active main, while the correct length of active main, in each case much greater than the disused, has been left out entirely.

Discrepancies between the Summary Totals and the Totals given on Page 4605 of the testimony—amounting to 20,129.6 feet, against the company.

Q. That is something like four miles in that instance?

—. Yes, sir.

Q. Does there appear, as far as you can observe, any pos-
5426 sible kind of error which could have been made which has not been made?

Objection.

The MASTER: I think that is hardly allowable, Mr. Mathewson.

Q. Now, referring to these various classes of errors and discrepancies, did you find any instance in which the errors and discrepancies were not against the interests of the company?

A. Not one single instance.

Q. Now, let us take the first instance. You say in every instance observed by you the lengths shown on the map are shorter than the official lengths?

A. Yes, sir.

Q. Where did you get the official lengths?

A. From the official card of the city, giving street widths and block measurements.

Q. This is data of the City of New York?

A. Yes, sir.

Q. Have you a schedule showing some instances according to your measurement where the distance is shorter than the official length?

A. Yes, sir.

Q. Is this paper which you produce such a statement?

A. Yes, sir. It is as follows:

Taken by Mr. C. C. Simpson.

Measured on line of—	From—	To—	Official length.	Volume scales.	Volume is short.
8th Avenue	S. P. line, 145th Street	N. P. line, 150th Street	1399 ft. 2 in.	1394 ft. 0 in.	5 ft. 2 in.
131st Street	W. P. line, 5th Avenue	E. P. line, Lenox Avenue	895 ft. 0 in.	890 ft. 0 in.	5 ft. 0 in.
Amsterdam Avenue	N. P. line, 110th Street	S. P. line, 105th Street	1449 ft. 2 in.	1403 ft. 0 in.	46 ft. 6 in.
8th Avenue	N. P. line, 81st Street	S. P. line, 76th Street	1421 ft. 8 in.	1405 ft. 0 in.	16 ft. 8 in.
Manhattan Avenue	N. P. line, 109th Street	S. P. line, 105th Street	1147 ft. 4 in.	1135 ft. 0 in.	12 ft. 4 in.
Lenox Avenue	N. P. line, 115th Street	S. P. line, 110th Street	1409 ft. 2 in.	1362 ft. 0 in.	47 ft. 2 in.
77th Street	E. P. line, 2nd Avenue	W. P. line, 3rd Avenue	810 ft. 0 in.	786 ft. 0 in.	24 ft. 0 in.
78th Street	E. P. line, 2nd Avenue	E. P. line, 1st Avenue	750 ft 0 in.	729 ft. 0 in.	21 ft. 0 in.
West End Avenue	N. P. line, 100th Street	C. P. line, 96th Street	1145 ft. 8 in.	1130 ft. 0 in.	15 ft. 8 in.
Lexington Avenue	S. P. line, 115th Street	N. P. line, 120th Street	1409 ft. 2 in.	1383 ft. 0 in.	26 ft. 2 in.
33rd Street	W. P. line, 2nd Avenue	E. P. line, 1st Avenue	850 ft. 0 in.	845 ft. 0 in.	5 ft. 0 in.
10th Street	W. P. line, 1st Avenue	E. P. line, Avenue A	813 ft. 0 in.	785 ft. 0 in.	28 ft. 0 in.

5428 Mr. PAGE: I think it would be well probably if we should have just one or two of those volumes brought down and a demonstration given that they are shorter.

Mr. MATHEWSON: Very good. It can be done without any difficulty. Will you go ahead, Mr. Simpson.

The WITNESS: Now, I may say that in each case in here, of course, the entire page is wrong; because, you understand, these things are all straight lines, and if I take one avenue and that avenue is short all the rest of the avenues are short, too, and I have only taken here what I actually scaled myself.

By Mr. PAGE:

Q. When you referred a moment ago to the "official card of the City," that was a card issued by what or whom?

A. By the Bureau of Highways.

By Mr. MATHEWSON:

Q. Now, you have stated that all the mains on five complete maps, Nos. 118 to 122 of volume 6, have been entirely omitted?

A. Yes, sir.

Q. Have you a statement of those mains, the detail?

A. I have, sir; the sizes and number of feet.

Q. Now, will you please state that?

A. ——.

A. The mains on maps Nos. 118, 119, 120, 121 and 122 do not appear in Prof. Marks' exhibits.

These mains, by actual street distances, are as follows:

	3-inch	840 feet
	4-inch	25,918 feet
	6-inch	53,733 feet
	8-inch	18,187 feet
	10-inch	3,331 feet
	12-inch	8,413 feet
5429	16-inch	2,631 feet
	20-inch	6,238 feet
	24-inch	560 feet
	30-inch	10,200 feet
	Total	128,051 feet

Or 24.25 miles.

Q. Now, your estimate that the total sum of pipe by Mr. Marks, excluding abandoned mains, was about 780 miles, against 822, or 41 miles difference?

A. Yes, sir.

Q. And this would account for about twenty-four or twenty-five miles at one jump, wouldn't it?

A. Yes, sir; or more than half of it.

Q. You say in checking some of the volumes and comparing at random there are numerous other mains on the maps which do not

appear at all on Professor Mark's Exhibit. That is outside of these five pages, isn't it?

A. Yes, sir.

Q. Have you a schedule of such omissions?

A. Yes, sir.

Q. So far as you have examined the schedules?

A. Yes, sir.

Q. Will you state that for the record?

A. I have not all of them. I have a statement of some of them.

Q. Yes, I mean a statement of some of them, as an example.

A. Shall I state volume number and map number, or just the street and "from" and "to" and "where"?

Q. Well, the street, from, to or where will do for me, unless counsel for the other side want the volume.

Mr. BURR: I would rather have the volume, in addition.

Q. Have you it all on this statement?

A. Yes, sir. It is as follows:

Some Mains Omitted from Prof. Marks' Exhibits.

Volume No.	Map No.	Street or avenue.	Side.	From—	Side.	To—	Side.	Maps shows by scale. No. of feet.	Size main.	
4	77	39th Street.....	South	Park Avenue.....	E....	Lexington Ave.....	W	417	6 in.	01
4	77	41st Street.....	South	Lexington Ave...	E....	Third Avenue.....	W....	461	6 in.	02
4	83	49th Street.....	North	Lexington Ave...	E....	Third Avenue.....	W....	468	6 in.	03
4	83	49th Street.....	South	Park Aveuue.....	E ..	Second Avenue	W....	1,206	10 in.	04
6	105	Broadway	East.....	52nd Street.....	C. L..	57th Street.....	N.....	1,400	6 in.	05
6	109	Avenue A.....	East.....	63rd Street.....	C. L..	57th Street.....	C. L..	1,569	12 in.	06
7	142	115th Street.....	North	Broadway.....	W...	Riverside Drive.....	E.....	555	6 in.	07
8	155	76th Street.....	North	Fifth Avenue.....	E....	Lexington Ave.....	W....	935	6 in.	08
								102	4 in.	09
								439	6 in.	010
8	155	76th Street.....	North	Third Avenue....	W...	Third Avenue.....	W....	60	4 in.	011
8	156	78th Street.....	North	Fifth Avenue.....	E....	Third Avenue.....	W....	468	6 in.	012
								35	3 in.	013
								432	4 in.	014
								938	6 in.	015
8	157	86th Street.....	South	Fifth Avenue.....	E....	Madison Ave.....	W....	450	4 in.	016
8	159	Avenue A	West.....	77th Street.....	N....	79th Street.....	S.....	494	6 in.	017
8	160	85th Street.....	South	First Avenue.....	C. L..	Avenue A.....	W....	681	6 in.	018
		Total.....						11,110 feet or 2.10 miles.		

PAGE BOUND VERTICAL IN BOOK

5432 Q. This sample which you have presented shows a total of 11,110 feet, or something over two miles?

A. 2.10 miles.

Q. Is it the fact that entire blocks were left out of the mains?

A. Yes, sir, not entire blocks only, but in some cases the entire width of the page, for instance, such as 1206-feet, 1400-feet, 1569-feet.

Q. Now, you say there are also numerous cases where the length is given by Professor Marks as shorter than actually shown on the maps, even if measured by their own scale?

A. Yes, sir.

Q. Have you illustrations of these errors that you have discovered?

Mr. BURR: Of course, I expect to be furnished with copies of these statements for the purpose of enabling me to cross-examine.

Mr. MATHEWSON: You shall have them before I get through, before they are printed; and you can proceed with your cross-examination from them right here.

Q. Will you present this for the record?

A. Yes, sir. It is as follows:

(Here follows table marked pp. 5433 and 5434.)

SOME MAINS INCORRECTLY SCALED FROM MAPS WHICH APPEAR ON PROF. MARKS' EXHIBITS.

Volume No.	Map No.	Street or Avenue	Side	From	Side	To	Side	Given on Marks' Exhibit Feet	Size	Should be Feet	Size	Difference Feet	Map Reference
6	105	Eighth Avenue.	E.	52nd Street	C.	57th Street	C.	1255.89	12 in.	1335	12 in.	79.11	D 1
6	105	Broadway	W.	52nd Street	C.	57th Street	C.	1297.06	10 in.	1364	10 in.	66.94	D 2
6	111	Fourth Avenue	W.	57th Street	C.	62nd Street	C.	567.07	8 in.	568	8 in.	.93	D 3
								55.51	6 in.	750	6 in.	694.49	D 4
7	148	120th Street	N.	Amsterdam Ave.	W.	Broadway	E.	739.94	6 in.	808	6 in.	68.06	D 5
7	148	121st Street	S.	Amsterdam Ave	E.	Morningside Ave.	W.	395.49	6 in.	424	6 in.	28.51	D 6
7	148	121st Street	N.	Amsterdam Ave.	W.	Broadway	E.	739.94	6 in.	807	6 in.	67.06	D 7
7	148	122nd Street	S.	Amsterdam Ave.	W.	Broadway	E.	739.94	6 in	810	6 in.	70.06	D 8
7	148	123rd Street	N.	Amsterdam Ave.	W.	Broadway	E.	739.94	6 in	810	6 in.	70.06	D 9
7	148	123rd Street	N.	Morningside Ave.	C.	Amsterdam Ave.	E.	790.97	6 in.	871	6 in.	80.03	D 10
7	148	124th Street	N.	Amsterdam Ave.	W.	Broadway	E.	739.94	6 in.	810	6 in.	70.06	D 11
7	148	124th Street	N.	Morningside Ave	C.	Amsterdam Ave.	E.	790.97	6 in.	871	6 in.	80.03	D 12
7	148	125th Street	S.	Morningside Ave	C.	Broadway	E.	1603.26	6 in.	1745	6 in.	141.74	D 13
8	154	74th Street	S.	Second Avenue	W.	Third Avenue	E.	629.80	6 in.	642	6 in.	12.20	D 14
8	154	75th Street	S.	Second Avenue	W.	Third Avenue	E.	614.90	6 in.	642	6 in.	27.10	D 15
8	154	75th Street	N.	Second Avenue	W.	Third Avenue	C.	637.25	4 in	660	4 in.	22.75	D 16
8	154	76th Street	S.	Second Avenue	W.	Third Avenue	E.	614.90	6 in.	642	6 in.	27.10	D 17
8	154	76th Street	N.	Second Avenue	W.	Third Avenue	C	614.90	4 in.	630	4 in.	15.10	D 18
8	157	86th Street	N.	Fourth Avenue	E.	Third Avenue	W.	557.75	6 in.	962	6 in.	404.25	D 19
8	158	79th Street	N.	Third Avenue	C.	First Avenue	C.	60.30	6 in.	52	6 in.		
								546.06	6 in.	570	6 in.	23.94	D 20
								661.61	6 in.	795	6 in	133.39	D 21
8	158	81st Street	S.	Third Avenue	E.	First Avenue	W.	1329.22	6 in.	1388	6 in.	58.78	D 22
8	158	85th Street	S.	Third Avenue	E.	First Avenue	C.	632.28	6 in	653	6 in.	20.72	D 23
								689.76	6 in.	716	6 in.	26.24	D 24
8	158	Second Avenue	W.	79th Street	C.	86th Street	C.	201.18	12 in.	1886	12 in.	1684.82	D 25
8	158	Second Avenue	E.	79th Street	C.	86th Street	C.	1753.14	30 in.	1886	30 in.	132.86	D 26
8	158	Second Avenue	E.	79th Street	N.	86th Street	C.	1785.48	10 in.	1855	10 in.	69.52	D 27
8	158	First Avenue	W.	79th Street	N.	86th Street	C.	1785.48	6 in.	1855	6 in.	69.52	D 28
8	160	83rd Street	N.	First Avenue	C.	Avenue A	W.	250.41	6 in.	645	6 in.	394.59	D 29
8	160	83rd Street	N.	Avenue A	E.	East River		398.73	6 in.	1050	6 in.	651.27	D 30
8	161	88th Street	N.	First Avenue	C.	Avenue A	W.	328.14	6 in.	645	6 in.	316.80	D 31
								31.01	4 in.	31	4 in.		D 32
8	161	Avenue A	W.	88th Street	C	92nd Street	N.	502.54	6 in.	1053	6 in.	550.46	D 33
8	162	87th Street	S.	Second Avenue	W.	Third Avenue	E.	633.75	6 in.	642	6 in.	8.25	D 34

87

Total Difference 6166.90

5435 Q. Now, the differences run from the fraction of a foot up to 1,684 feet, so far as you have shown on this statement you have just read in evidence?

A. Not a fraction of a foot in any case. I did not look for that at all. Oh, yes, in one case it was .93.

Q. .93 of a foot, yes, and up to 1,684 feet in one case?

A. Yes, sir.

Q. And the total of this illustration is 6,166.9 feet, or something over a mile, isn't it?

A. Yes, sir.

Q. In some cases the mains tie to transverse lines and there is no accurate statement on the map or any statement of the distance of the mains from the curbs?

A. No, sir.

Q. Has that resulted in an inaccuracy of main distances in such instances where you have examined?

A. Yes; because the curb line is not even shown on the map. It is only the house line that is shown.

Q. Have you a table or an illustration of some of these differences?

A. I have a table of a few of the absolutely thousands of cases of that kind—every street corner where a main stops.

Q. That is what I mean as an illustration; and this schedule which you now present, is that an illustration of that character of error?

A. Yes, sir.

Q. And this particular sheet shows a difference of 813 feet, due to these circumstances?

A. Yes, sir. The schedule is as follows:

Main on—	From—	To—	Volume Scale.	Key Book.	Difference in Feet.	Affects Mains.	Total ft. Affected.
W. S. Ave. A	72nd St	77th St	On Line	8′ S. W. C.	8	4	32
W. S. 1st Ave	73rd St	76th St	On Line	4′ E. W. C.	4	3	12
E. S. 2nd Ave	73rd St	78th St	On Line	4′ W. E. C.	4	3	12
E. S. 3rd Ave	72nd St	78th St	On Line	5′ W. E. C.	5	3	[illegible]
E. S. 5th Ave	72nd St	78th St	7 ft. Inside	5′ W. E. C.	12	7	84
E. S. 4th Ave	72nd St	78th St	2 ft. Inside	4′ W. E. C.	6	4	24
N. S. 79th St	3rd Ave	5th Ave	7 ft. Inside	7′ S. N. C.	14	5	70
S. S. 79th St	3rd Ave	Lex. Ave	5 ft. Inside	4′ N. S. C.	9	2	18
S. S. 79th St	4th Ave	5th Ave	5 ft. Inside	6′ N. S. C.	11	3	33
E. S. 5th Ave	80th St	83rd St	9 ft. Inside	4′ W. E. C.	13	5	65
E. S. 5th Ave	83rd St	88th St	12 ft. Inside	4′ W. E. C.	16	6	96
S. S. 79th St	1st Ave	Ave. B	7 ft. Inside	4′ N. S. C.	11	4	44
S. S. 86th St	1st Ave	Ave. B	2 ft. Inside	3′ N. S. C.	5	2	10
E. S. 5th Ave	89th St	94th St	11 ft. Inside	4′ W. E. C.	15	6	90
W. S. 4th Ave	96th St	97th St	On Line	4′ E. W. C.	4	1	4
W. S. 4th Ave	97th St	98th St	2 ft. Inside	4′ E. W. C.	6	1	6
W. S. 3rd Ave	95th St	98th St	5 ft. Inside	6′ E. W. C.	11	4	44
E. S. 5th Ave	94th St	99th St	9 ft. Inside	4′ W. E. C.	13	6	78
E. S. 2nd Ave	93rd St	98th St	On Line	8′ W. E. C.	8	5	40
E. S. 1st Ave	99th St	104th St	On Line	4′ W. E. C.	4	5	20
W. S. Park Ave	99th St	102nd St	On Line	4′ E. W. C.	4	4	16
							813

The above cases are taken from the first part of Volume Eight.

PAGE BOUND VERTICAL IN BOOK

5437 Q. Now, you have also said that there are a number of instances, so far as your examination goes, where the sizes as given by Professor Marks are incorrect?

A. Yes, sir.

Q. Thirty-inch main is stated where it should be thirty-six-inch main, and so forth?

A. Yes, sir.

Q. Have you an illustration of those errors?

A. Yes, sir. The illustration is as follows:

5438 & 5439 *Some Errors in Sizes of Mains in Prof. Marks' Exhibits.*

Volume No.	Map No.	Street or Avenue.	Side.	From—	To—	Prof. Marks' Sheets Give Feet.	Size.	This should be Feet.	Size.	
4	83	Third Avenue....	West..	C. 47th Street....	C. 52nd Street.....	1280	4-in.	974 ft.	4-in.	S. 1
								307 ft.	6-in.	S. 2
								19 ft.	6-in.	S. 3
7	152	Seventh Avenue..	East...	C. 125th Street....	C. 130th Street.... ...	1309.02	3-in.	1304 ft.	4-in.	S. 4
8	154	74th Street.....	South..	W. S. 1st Avenue.	E. S. 2nd Avenue.....	674.53	4-in.	674 ft.	6-in.	S. 5
8	155	78th Street.....	South..	E. S. 4th Avenue.	W. S. 3rd Avenue.....	950.30	3-in.	960 ft.	6-in.	S. 6
8	172	111th Street.....	South..	C. 5th Avenue....	C. 3rd Avenue.....	2006.25	30-in.	2026 ft.	36-in.	S. 7
11	255	152nd Street	.....	W. S. Broadway..	C. Amsterdam Avenue.	943.67	4-in.	100 ft.	4-in.	S. 8
								30 ft.	4-in.	S. 9
								818 ft.	8-in.	S. 10
6	109	First Avenue.....	West..	C. 63rd Street....	C. 57th Street.....	1585.35	8-in.	1571 ft.	6-in.	S. 11

PAGE BOUND VERTICAL IN BOOK

5440 Q. All these errors here and those to which I have previously called your attention appear on the face of the maps themselves?

A. They do, sir.

Q. The dimensions of the mains here appear on the map correctly?

A. Yes, sir.

Q. They have been incorrectly taken off by Mr. Marks?

A. Yes, sir.

Q. Have you also prepared a table illustrating some of the other errors to which you have testified as differences between the detailed schedules and the summary sheets of Professor Marks' exhibits?

A. Yes, sir.

Q. And mains appearing on the detailed schedule have been omitted from the summary sheets?

A. Yes, sir.

Q. And mains appearing in detail of a certain size have been put down on the summary sheet under a smaller size?

A. Yes, sir.

Q. And mains appearing on detail schedules as disused where the main described is shown on the map as being in use?

A. Yes, sir.

Q. And mains appearing in a column of the summary sheet which has not been totaled, and therefore not included in the totals given on page 4605?

A. Yes, sir.

Q. Is this the result of the examination of the entire number of schedules, or merely an illustration?

A. Merely illustrations all the way through. We have not gone through the whole thing.

Q. Do you desire to spread that on the record as an illustration of those discrepancies?

A. Yes, sir. The illustration is as follows:

5441 SOME OF THE DISCREPANCIES EXISTING BETWEEN THE DETAILED SCHEDULES AND THE SUMMARY SHEETS OF PROF. MARKS' EXHIBITS.

(Errors in length.)

Vol. No.	Map No.	Schedule No.	Schedule gives—	Summary gives—	Error. Against company.
1	8	10	71.41 ft. 3 in.	21.41 ft. 3 in.....	50.00 ft.
8	162	143	4693.43 4	4593.43 4	100.00
6	112	111	1771.00 4	1271.00 4	500.00
6	113	112	1796.25 6	1716.25 6	80.00
6	114	112	6730.10 6	6530.10 6	200.00
8	173	156	5048.50 4	4048.50 4	1000.00
					1930.00 ft.

Mains Appearing on Detail Schedules, but Omitted from Summary Sheets.

Vol. No.	Map No.	Schedule No.	Schedule gives—	Summary gives—	
1	21	27	862.50 ft. 20 in.	.....	862.50 ft.
4	73	78	1588.81 30	.....	1588.81
7	144	127	1333.33 20	.....	1333.33
7	147	129	1128.46 8	.....	1128.46
6	114	114	1331.25 10	.....	1331.25
					6244.35 ft.

Mains Appearing on Detail Schedule as a Certain Size, but Shown on the Summary Sheet Under a Smaller Size.

Vol. No.	Map No.	Schedule No.	Schedule length.	Gives size.	Summary length.	Gives size.
			ft.	*in.*	*ft.*	*in.*
1	13	17	375	24	375	20
3	36	68	575	20	575	18
7	(142½–143)	126	1310.28	16	1310.28	12
11	240	163	1302.07	30	1502.07	24

5442 *Mains Appearing on Detail Schedules as Disused, Where the Main Described is Shown on the Map as Being in Use.*

Vol. No.	Map No.	Schedule No.	Schedule gives—	
7	182	120	1316.25 ft. 20 in. disused.....	1316.25 ft.

Mains Appearing in a Column of the Summary Sheet which have not Been Totaled and Therefore Not Included in the Totals Given on p. 4605.

Summary sheet No.	Entries on summary sheet not included in the total amount to— Length.	Size.	Error. Against company.
7 A	5975.66 ft.	10 in.....	5975.66 ft.

Volume No.	Schedule No.
7	125

The entries credited to Map 142 on the Summary Sheet, should really be credited to Map 141, as proved by checking from the Detail Schedule. The mains appearing on the Detail Schedule—and belonging to Map 142 do not appear on the Summary at all. This is an error against the Company of:

3569.63 ft. of 6 in.	
1742.40 ft. " 8 in.	
50.51 ft. " 12 in.	
1352.98 ft. " 30 in.	
6715.52 ft.....	6715.52 ft.

Volume No.	Map No.	Schedule No.
4	77	82

The active 4-inch main is entered but not totaled on the detailed schedule. It amounts to 2,087 feet (about).

The 4-inch disused main is 987.86 ft. and this is shown on the summary sheet as active..... ..... 1,097.14 ft.

5443 Volume No.	Map No.	Schedule No.
5	90	92

The active 3-inch main appears on the detailed schedule as 1135.49 ft., and the disused 3-inch main as 769.80 ft. The disused length is shown on the summary as the active main..... 367.69 ft.

The main mileage given on page 4605 of the testimony does not agree with the totals as taken from the summary sheets, as shown by the following table:

Size of main.	Total length as given in testimony p. 4604.	Total length as taken from the summary sheets and added.	Difference.	
2 inch.....	3,969.60	3,969.60		
3 "	138,057.22	138,057.24	.02	
4 "	477,561.87	478,601.87	1,040.00	
5 "	430.27	430.27		
6 "	1,945,509.85	1,957,798.85	12,289.00	
8 "	468,847.20	468,832.15		+ 15.05
10 "	69,635.34	69,859.68	224.34	
12 "	305,248.17	305,248.17		
16 "	82,094.15	82,869.15	775.00	
18 "	32,771.97	33,834.72	1,062.75	
20 "	143,368.16	147,202.60	3,834.44	
24 "	35,391.73	36,279.88	888.15	
30 "	140,233.42	140,233.42		
36 "	19,163.95	19,163.95		
			20,113.70	
		less.....	15.05	
				20,098.65

Total error against the Company in the above noted cases..... 43,745.26 feet.

5444 Q. And the errors shown on this sheet, which you have just presented, amount in total, do they not, to 43,745.26 feet, or something like eight miles, isn't it, or a little over?

A. Yes, sir; 43,745.26 feet.

Q. Now, you have another table, haven't you, relating to this subject?

A. Yes.

Q. Will you state what it is? What is this first table you have before you?

A. It is a summary of the errors made by Mr. Marks in giving the length of the mains.

Q. As to the mains, so far as you examined?

A. Yes, sir.

By the MASTER:

Q. You mean a recapitulation of the statements already made here?

A. Yes, sir: The summary is as follows:

5445 The mains, active and disused, as given by Mr. Simpson, at Oct. 31st, 1905, amount to a total of 4,344,849.00

Mains scaled from Maps by Prof. Marks.

Active	3,862,282.90	
Adding disused at Oct. 31st, 1905	147,158.00	
		4,009,440.90

Adding for

Maps 118, 119, 120, 121, 122—five in all—not scaled by Prof. Marks (see sheet)		128,051.00
Some of the mains omitted from Prof. Marks' exhibits (see sheet)		11,110.00
Some of the mains incorrectly scaled by Prof. Marks (see sheet)		6,166.90
Prof. Marks allows for the Bronx (see page 4605)		29,111.00
Some of the errors noted in comparing the detail schedules with summary sheets (see list)		43,745.26
		4,227,625.06

Leaving, according to Prof. Marks' statement, and not including other uncorrected errors, a difference of... 117,223.94
—which is equal only to 2.69 per cent.

Q. You now produce another sheet?
A. Yes, sir. It is as follows:

5446 The mains, active and disused, as given by Mr. Simpson, at Oct. 31st, 1905, amount to a total of 4,092,913.36

Mains scaled from Maps by Prof. Marks.

Active	3,862,282.90	
Disused	230,630 40	
		4,092,913.30

Adding for

Maps, 118, 119, 120, 121, 122 (the pages omitted) 5 in all, not scaled by Prof. Marks. (See sheet)		128,051.00
Some of the mains omitted from Prof. Marks' exhibits. (See sheet)		11,110.00
Some of the mains incorrectly scaled by Prof. Marks. (See sheet)		6,166.90
Prof. Marks allows for the Bronx. (See page 4605)		29,111.00

(Prof. Marks' total did not include the Bronx mains, which are nearly six miles.)		
Some of the errors noted in comparing the detail schedules with the summary sheet (see list).....	43,745.26	
		4,311,097.46
Leaving, according to Prof. Marks' statement, and not including other uncorrected errors, a difference of...		33,751.54

—which is equal to only 77/100 of 1 per cent.

Q. How does that differ from the table which has been placed on the record just before this last one?

A. On this second sheet in place of the 230,630.04 feet of
5447 disused mains, I have taken only the disused mains that we are carrying on our books, amounting to 147,158.00.

Q. That is to say, in place of the disused mains given by Professor Marks, you have reduced that to the amount of disused mains we actually have on our books?

A. Yes. That brings the difference down to 117,223.94 or 2.69 per cent.

Q. That, of course, would increase the difference if you cut out a portion of the mains?

A. Yes.

Q. Leaving the active mains in each case as scaled by Mr. Marks and as they appear upon our records for the purpose of comparison?

A. Yes, sir.

Q. How near did Mr. Marks state to you that he thought he could come on scaling the maps to the exact mileage of the mains?

A. His exact words were, "I think I can come within 5 per cent. of it;" and my reply was, "You cannot come within 15 per cent."

Q. Isn't it the fact that since November 17th, 1906, when Mr. Marks made his examination, or began it, that mains have been added to the maps which were on the records of the company before that, but which had not been transferred to the maps?

A. Yes, sir.

Q. And does this schedule which you now present show what those were?

A. Yes, it does, and it is as follows:

5448 & 5449 *Memo. of Mains Entered on Insurance Volume Maps Since November 17th, 1906.*

Size.	Side.	Street or Avenue.	From—	To—	Feet. No. of.	Volume Entered in.	Volume.	Map.
8 in..	East..	St. Nicholas Pl..	13 ft. N. N. C. 150th St.....	6 ft. N. S. C. Edgecombe Ave.....	1,210	12/ 4/06	11	256
6 in..	North.	152nd Street....	8 ft. W. E. C. St. Nicholas Place...	30 ft. W. W. C. St Nicholas Pl...	62	12/ 4/06	11	256
6 in..	South.	136th Street....	18 ft. W. W. C. Convent Ave.....	261 ft. W. W. C. Convent Ave....	243	12/ 4/06	11	243
6 in..	South.	157th Street.....	3 ft. E. W. C. Broadway.....	6 ft. E. E. C. Wall Riverside Drive.	554	12/ 4/06	11	260
6 in..	North.	170th Street.....	24 ft. W. W. C. Ft. Washington Ave.	310 ft. W. W. C. Ft. Washington Ave.	286	12/ 4/06	12	261
6 in..	South.	156th Street.....	4 ft. E. W. C. Broadway.....	4 ft. E. E. Wall Riverside Drive..	650	12/ 4/06	11	260
6 in..	North.	145th Street.....	237 ft. W. W. C. Broadway.....	368 ft. W. W. C. Broadway.....	131	12/ 4/06	11	254
6 in..	North.	35th Street.....	3 ft. E. E. C. Lexington Ave.....	12 ft. W. W. C. 3rd Ave.....	440	12/ 4/06	4	74
6 in..	North.	45th Street.....	10 ft. E. E. C. 1st Ave.....	362 ft. E. E. C. 1st Ave.....	352	11/19/06	4	3
8 in..	North.	54th Street.....	W. C. Line 10th Ave.....	4 ft. W. E. C. 11th Ave.....	844	11/19/06	6	103
					4,772			

Q. How many feet are there?
A. 4,472 feet.

By the MASTER:

Q. Those were not taken into account by you in making your examination?

A. No, sir.

Mr. PAGE: They were taken in by him when he gave his 822 miles.

The WITNESS: Certainly not. This is since I gave my testimony.

Mr. MATHEWSON: I am merely illustrating that the maps would not at any time exactly coincide with the record of the books, because there are mains in the books which have not been transferred to the maps, probably at all times, more or less.

Mr. BURR: I understand this is merely offered for the purpose of comparison. It is not now claimed that they have more miles of mains?

Mr. MATHEWSON: No. We are simply claiming the mileage of mains which appeared on October 31st, 1905, as Mr. Simpson has testified, but of course your measurements made last November must represent some little different mileage from that, undoubtedly.

Mr. BURR: That is an assumption of yours, isn't it?

Mr. MATHEWSON: It must be. I think it is a fair one, though. But as you attempted to attack the 822 miles we are meeting it in that spirit.

Mr. PAGE: Then I understand that these four thousand feet that you put in now were things that were on the books of the
5451 company and entered into the 822 miles, but had not been transferred to the maps.

The WITNESS: No, sir.

Mr. MATHEWSON: No, Senator.

Mr. PAGE: Then do you claim since October 31st that you have laid those additional mains which had not been transferred to the maps when Mr. Marks made his measurements, but have since been transferred to the maps? If that is so why should they enter into the calculation at all.

Mr. MATHEWSON: Yes, I think so. They do not enter into the calculation. All we are claiming is 822 miles which we had on October 31st, 1905, not including mains put in since, because we cannot follow it up to the very date, else we would never get through with this action.

Mr. PAGE: What are these mains added since? What does that show? If it had been added since and had not been put on the maps, or been added to the books since and added to the map since——

Mr. MATHEWSON: You do not understand the case, Senator. On the 17th of November when Professor Marks made his examination there were certain mains which had been laid and which appeared in the records of the Engineering Department. Those mains are not placed upon the maps until after they are laid and after they appear in the Engineering Department records, so you would always probably find by the company's records a few more mains than ap-

peared on the maps, because they are not transferred to the maps for perhaps a week or a month after they appear in the record of the company. It is done at convenience by draughtsmen. That
5452 is the point. It is merely to illustrate the impossibility of the kind of a comparison, even from that standpoint, which Mr. Marks seeks to make in checking our book record of mains.

Mr. PAGE: Illustrations are all right, but testimony that certain additions were made or existed at that time, it seems to me, should be more comprehensive.

Mr. MATHEWSON: We will put it in, if you want it on the record.

By Mr. MATHEWSON:

Q. That is a correct statement, is it, Mr. Simpson?

A. It is a statement of mains entered on our maps since Professor Marks made his measurement, that is all it is.

Q. But those mains were in your books when Professor Marks made his measurements, were they not?

A. No, sir.

Q. None of them?

A. None of them. This is an alteration of the map since Professor Marks made his measurement.

Mr. MATHEWSON: Then in that view I do not see that it is material. It is not material for the purposes of a comparison.

Q. Isn't it a fact that there are frequently mains on the records of the company which have not yet been transferred to the maps?

A. There isn't a — where you wouldn't find them.

Q. So that an examination of the map, even if correct as to scale and everything else, would not show exactly the same figures as the books, as a rule? It would show a smaller figure, wouldn't it?

A. It might neither show it in any. These reports are sent in and it does not mean to say immediately they are received
5453 they are entered in the book or on the maps from the books. The draughtsman who enters them up might have important work on hand for a week before he could enter them and in that case they would not be on the maps, but the record would be in the office.

Q. But you would know what they were?

A. Yes, and the amount of mains we had at that time would be the book records plus the reports sent in and not entered on the books, if there were any.

Q. Now, Mr. Marks presented the schedule showing his estimate of cost of original installation of pipes according to the size?

A. Yes, sir.

Q. And he stated that in cases where mains were laid by contract that 15 per cent. should be allowed beyond the rate where they were laid by the company. Have you prepared a schedule showing the value of the mains, original installation, based upon Dr. Marks' figures, even deducting the disused mains and taking only the 795 miles of active mains?

A. Yes, sir.

Q. Is that the computation which you have in your hand?

A. Yes, sir. It is as follows:

5454 ESTIMATE OF INSTALLATION VALUE—OCTOBER 31st, 1905.

(Based on mileage at that date at Prof. Marks' prices.)

Size.	No. of feet.	Price per foot.	Amount.	
1½″	1,407			
2″	4,365	$ .925	4,037.63	
3″	222,741	1.07	238,332.87	
4″	557,469	1.22	680,112.18	
5″	2,799	1.42	3,974.58	
6″	2,129,088	1.625	3,459,768.00	
8″	528,040	2.095	1,106,243.80	
10″	71,286	2.41	171,799.26	
12″	321,536	2.937	944,351.23	
16″	98,901	3.78	373,845.78	
18″	29,633	4.28	126,829.24	
20″	178,803	4.757	850,565.87	
24″	45,956	5.645	259,421.62	
30″	131,583	7.71	1,014,504.93	
36″	22,242	9.695	215,636.19	
				$9,449,423.18

Deducting the mains disused at October 31st, 1905, calculated on Prof. Marks' prices as follows:

Size.	No. of feet.	Price per foot.	Amount.	
2″	125	.925	115.63	
3″	53,444	1.07	57,185.08	
4″	49,388	1.22	60,253.36	
5″	38,151	1.625	61,995.37	
6″	3,017	2.095	6,320.62	
10″	738	2.41	1,778.58	
12″	265	2.937	778.30	
20″	1,813	4.757	8,624.44	
24″	34	5.645	191.93	
30″	183	7.71	1,410.93	
				198,654.24
				$9,250,768.94
To which is added 15 per cent. of the cost of those mains laid by Contract.....				433,753.53
				$9,684,522.47

The books of the Company carry this cost, including also the 27.871 miles of main disused but not abandoned, at only $7,852,151.03.

5455 MAINS LAID BY CONTRACT.

(Taken over at Consolidation.)

Size.	Feet.	Price.	Value.	
1¼″	1,275			
2″	2,844	$ .925	$2,630.70	
3″	2,051	1.07	2,194.57	
4″	19,692	1.22	24,024.24	
6″	410,867	1.625	667,658.88	
8″	155,072	2.095	324,875.84	
10″	13,482	2.41	32,491.62	
12″	87,490	2.937	256,958.13	
16″	48,085	3.78	181,761.30	
20″	3,353	4.757	15,950.22	
24″	3,474	5.645	19,610.73	
30″	22,635	7.71	174,515.85	
				$1,702,672.08

LAID SINCE CONSOLIDATION.

(Up to October 31st, 1905.)

Size.	Feet.	Price.	Value.	
20″	19,085	$4.757	$95,068.65	
24″	7,039	5.645	39,735.15	
30″	108,765	7.71	838,578.15	
36″	22,242	9.695	215,636.19	
			$1,189,018.14	
				$1,189,018.14
Total				$2,891,690.22
15 per cent. of same				433,753.53

NOTE.—Based on mileage at Oct. 31st, 1905.

Prof. Marks' prices.

5456 Mr. PAGE: Is this a computation made up from Dr. Marks' testimony?

Mr. MATHEWSON: No, not entirely. It attacks his testimony as to certain elements, the cost of laying a main, and applies it to the 795 miles of active main, and also makes the addition for the mains laid by contract where the cost would be 15 per cent. more, and Mr. Simpson, I shall ask in a moment as to how that is made up, the contract part.

Mr. PAGE: Isn't that a matter for a brief, instead of testimony?

Mr. MATHEWSON: No, I don't think so. I think it is fair testimony.

Mr. BURR: It is merely a computation.
Mr. MATHEWSON: No, it is more than a computation.

Q. You know what portions of the mains of the company were laid by contract, do you?
A. I do.
Q. And Mr. Marks' testimony was that 15 per cent. should be allowed additional where mains were laid by contract to the figures that he gave?
A. Well, his testimony was that you must deduct 15 per cent. from the prices he gave because the mains were not laid by contract.
Q. Were some of the mains of the company laid by contract?
A. Yes, sir.
Q. To your certain knowledge?
A. Yes, sir.
Q. And have you included in this statement the mains that were laid by contract, by the figures which Dr. Marks gave for mains laid by contract?
A. Yes, sir.
Q. And the other mains, have you included at the figure which Dr. Marks gave for mains laid by the company and not by contract?
A. Yes, sir.
Q. Isn't it a fact that some of the mains were laid by con-
5457 tract beyond those that you have included at contract prices in this schedule?
A. Yes, sir.
Q. Do you know exactly how much they were?
A. I do not.
Q. So you have not attempted to include or estimate?
A. I have not attempted to include those.

By Mr. PAGE:

Q. Where you state mains have been laid by contract, is the amount that is entered upon this schedule the exact amount of the contract price as paid by the company?
A. No, sir. I have taken Professor Marks' price here. You see it shows on the top.

Mr. PAGE: I object to this then. It does not seem to me as relevant or material in any way.
The MASTER: I allowed some testimony the other day for the defendant which was very much of the same general character as this, and therefore I will now allow this testimony.
Mr. PAGE: Irrespective of that point, if they wish to attack his estimate of contract price, why not do it by showing what the contract prices were?
Mr. MATHEWSON: We are not attacking them in any way.
Mr. PAGE: I would like to get a few facts and not have only an estimate as has been given so far as to the value of mains.
Mr. MATHEWSON: You seem to be trying to protect the City's witness.
Mr. PAGE: No, I am not. I am trying to get the evidence in in some shape where it will be of value.

Mr. MATHEWSON: Mr. Marks testified as to the cost of installation of different sizes of pipes. We have taken his own schedule and included as contract mains only the mains that we knew
5458 were laid by contract, and in that case we have included Mr. Marks' own figures for the amount where they are laid by contract, and we are showing upon his own figures that the cost of the mains is what they appear in this schedule.

Mr. PAGE: We now have in the case three different valuations of the same mains, given by this witness, for different purposes prepared. Now, if we are going to have something accurate as to contract price and laying mains, to rebut Mr. Marks, it seems to me, it should be the actual cost price, if you want to show that his price was wrong in any way.

The MASTER: I said I would admit it as I had admitted other similar testimony.

Mr. PAGE: Exception.

By Mr. MATHEWSON:

Q. And according to those figures of Mr. Marks, what would be the cost of original installation of these 795 miles of active mains?

A. $9,684,522.47.

Q. That is nearly two million dollars more, is it not, than the $7,852,151.03 at which the company carries on its books the 795 miles of active mains, plus 27.871 miles of disused mains?

A. Yes, sir.

Q. Referring to your map measurements again, on the map the mains are made to run in a straight line to appearances, are they not?

A. Yes, sir.

Q. Do they, in fact, run in straight lines through the blocks?

A. We try to run them in straight lines wherever we can.

Q. Is that in every case possible?

A. No, sir.

Q. You have to curve around man-holes and one obstruction or another?

A. Yes, sir.

Q. In every such case does it not give a greater length of main than would appear from the straight line on the map?

A. Yes, sir.

5459 Q. Even if the scale of the map were correct?

A. Yes, sir.

Q. Is it occasionally the case that they turn to go around man-holes, or, rather, thousands of such cases?

A. Without any question there are thousands of such cases to-day in New York.

Q. And is the construction around a man-hole more or less expensive than the construction of straight pipe to that same extent?

A. It is at least 50 per cent. more expensive.

Q. Did you find that any allowance for such things as that was made by Mr. Marks in his figures or schedules?

A. No, sir.

Q. Again, as to the disused mains on the map not abandoned,

where a main is disconnected, it is indicated on the map, isn't it, by a scratching out?

A. By an erasure.

Q. The main is still there, isn't it?

A. In the case of those gaps, yes, sir.

Q. And the erasure merely indicates that the connection has been severed?

A. That the main is disconnected at that point.

Q. Did you observe whether, in measur-ng the maps, Mr. Marks or his assistants excluded these places where these erasures were?

A. I did, sir.

Q. As a matter of fact, mains are there, are they not?

A. Yes, sir.

Q. Did you yourself see the maps and measurements so that you know?

A. I saw Professor Marks' measurements.

Q. Now, about what proportions of these measurements of Mr. Marks' and these schedules from Exhibit 92 to Exhibit 103 did you examine in testing their accuracy?

A. Well, we went over between 10 and 20 per cent. of the maps in the volumes.

Q. You haven't been over then 20 per cent. of the schedules for the purposes of comparison?

A. Certainly not more than twenty, and I don't think 20
5460 per cent. even.

Q. Supposing the same ratio of error continued throughout the balance of the schedules as you discovered in the 20 per cent. you examined, how would that bring out the totals of mains as compared with the actual mileage of the company?

A. I think Professor Marks would give us more mileage than we actually claim.

Q. Fifty or one hundred miles, in the same ratio?

A. Yes, sir.

Mr. PAGE: What do you complain of, if he gives you more mileage?

Mr. MATHEWSON: We do not. We are pleased with the whole situation ourselves.

At 12:55 p. m. a recess was declared for lunch until 2:15 p. m.

5461 After Recess.

COLIN C. SIMPSON resumed.

By Mr. MATHEWSON:

Q. In referring to these valuations which have been the subject of attack by the defendants in their testimony, is the price of pipe to-day higher or lower than it was when you made the computations which were attacked, that is in 1906?

A. It is a great deal higher.

Q. And if the mains were to be computed on the cost of reproduction to-day it would raise your $12,656,000 how much, perhaps?

Mr. KIRBY: I object to this, Your Honor.
Mr. MATHEWSON: Well, all right.

Q. It would raise it on the basis of present prices, would it not?
A. At least 15 per cent.

Mr. KIRBY: And next year it might be 20 per cent. lower?
Mr. MATHEWSON: Precisely. I am merely showing that the tendency of materials is upwards.
Mr. KIRBY: And the tendency of mechanical devices is downwards, which equalizes the cost.

Q. Now, having disposed of Mr. Marks, or, rather, his testimony, let us look at Mr. Edgerton's testimony for a few moments. The testimony to which I am directing particular attention begins at page 4,033, with regard to the depth of mains, pages 4,033 to 4,035. Mr. Edgerton says that he has found a shallow main a preventive of trouble in services rather than adding to it. Have you had any such experience as that a shallow main prevents trouble with services?
A. I have had the opposite experience.
5462 Q. Did you ever hear the theory advanced until Mr. Edgerton gave it?
A. Never.
Q. What is the experience of the company with its services in the City of New York in cold weather?
A. That the shallower a service is, the more trouble we will have from it, and the deeper a service is, the less trouble we will have from it.
Q. Was the winter of 1903-'04 a particularly severe winter, do you remember?
A. 1903-'04? No, I do not remember. 1904-'05 I remember.
Q. Was there not a severe winter two or three years ago?
A. 1904-'05 was a very severe winter.
Q. Did you find it necessary in many cases during that winter to take up the pavement and thaw up the ground around your shallow services?
A. Yes, sir.
Q. Where the services were deeper, did you have as much trouble?
A. No, sir.
Q. What do you say to Mr. Edgerton's statement that frost does not interfere with service pipes when the mains are shallow, or does not so seriously affect them?
A. Well, I do not agree with him at all.
Q. Do you know of any city where it is the custom to lay shallow service pipes in a high altitude, in order to take advantage of the cold, so to speak?
A. I never heard of the theory before. I have heard the opposite.
Q. In regard to lamp risers, what is your experience as to the number of lamps frozen out in cold weather in New York?
A. It has been common in severe winters in New York during a prolonged cold snap to have absolutely thousands of lamps out in one night.

Q. And is it necessary to keep a large gang of men continuously at work thawing out these frozen stand pipes?

A. Not only a large gang, but large gangs of men in every district.

5463 Q. By stand pipes you refer to risers, as Mr. Edgerton calls them?

A. Risers.

Q. What is the cover at which the mains are laid in Manhattan, if possible?

A. They average, the Consolidated mains average a cover of 2 feet 9 inches.

Q. And how deep do you lay them where you can do so?

A. From four feet to three feet six inches; the minimum I allow when it is possible to lay them at that depth is three feet six inches.

Q. Is it possible in the island of Manhattan to adhere to any fixed rule as to depth?

A. No, sir.

Q. Why not?

A. On account of the multitude of sub-surface structures.

Q. In this very severe winter of two or three years ago what was the condition of the ground as to depth of freezing as compared with the normal year?

A. The frost that winter reached in places four feet three inches deep, which is deeper than I have ever known it in Manhattan before in my twenty-five years' experience.

Q. And the average winter is how deep?

A. Last winter it did not reach twelve inches.

Q. But the average is not over two fee six inches, is it?

A. It is generally a very severe winter when it reaches three feet in depth.

Q. So that in the average winter the mains are not frozen, that is to say, the frost does not extend down more than to the top of the mains, does it?

A. No, sir.

Q. Isn't it true that during this severe winter of two or three years ago the pipes of the company were frozen throughout substantially the whole winter, that is the fost below the pipes and the pipes surrounded by frozen earth?

A. There was, I should say, at least 80 per cent., between 70 and 80 per cent. of our mains were surrounded by frozen earth, mains and services.

5464 Q. Now, Mr. Simpson, in this severe winter, when your mains were frozen up, according to Mr. Edgerton's theory, as I understand it, that that should prduce some precipitation of moisture so you would have less trouble with the services than usual, what is the fact? Did you have less truble during that winter or more trouble than usual with your services?

A. I don't quite understand the quesion, Mr. Mathewson.

Q. (Question read.) In other words, did you have more trouble or less trouble with your services the year that your mains were frozen up with frost four feet deep, or dd you have less trouble than you do when the mains are not frozen up?

A. No, sir, the deeper the frost got the more trouble we had, and the climax came when the frost got down to four feet three inches deep, the most trouble of all.

Q. Then what was the condition as to your services?

A. Then they were freezing by the thousand.

Q. And you did not find the fact that at the mains were embedded in frozen earth was helping your services at all?

A. Not one bit.

Q. Do you know at what depth the mains in the City of Montreal were to be placed according to Mr. Bemis' estimate?

A. I know from my own knowledge; I have been out there and have seen them.

Q. Well, what?

A. They do not allow any main to be laid less than four feet to four feet s-x inches, and where they can get deeper they do it; when they can get to six feet they do it.

Q. On account of the temperature?

A. On account of the frost in the ground.

Q. Now, Mr. Edgerton, at page 4037 says in general that he has followed the cost of digging trenches in which to lay pipes, and the refilling of the same in detail. Does his description or theory apply, or can it apply, to pipes in large places and under New York conditions?

A. No, sir, it cannot.

5465 Q. Would a situation that would apply in Danbury or Asheville apply in New York City at all?

A. It might in some instances; I don't know——

Q. As a general proposition?

A. As a general proposition it would certainly not.

Mr. KIRBY: The witness is not familiar with the peculiar conditions of Danbury, I suppose?

Mr. MATHEWSON: Well, he is with small places in general.

Q. In laying such large pipes as this company is laying, thirty-inch, thirty-six-inch and forty-eight-inch, you require, do you not, derrick men and large derricks and other material that you do not require in laying smaller mains?

A. Yes, sir.

Q. Now, Mr. Edgerton in his estimate of pipe referred to the cost of pipe laid beside the ditch. Are you permitted in New York City to lay your pipe beside the ditch while you are opening the ditch on one side of the street?

A. We are not allowed to cart any pipe into the street until we have a permit, and our permit is issued on the condition that we commence work within twenty-four hours after the receipt of the permit.

Q. Where do you have to place your pipe when you open a trench on one side of the street?

A. On the opposite side of the street.

Q. And it cannot, therefore, be delivered at the trench, but has to be rolled across the street when you get ready for it, is that right?

A. Yes, sir.

Q. Are you permitted to open a trench of unlimited length in New York City?

A. No, sir; we are limited to six hundred feet.

Q. That is less than three blocks.

A. Two blocks. Two blocks is five hundred and twenty feet.

Q. Are you entitled to open more trench until that is filled?

A. No, sir.

5466 Q. Mr. Edgerton said he had made no allowance, so I understood it, for bridging. What is true as to bridging in laying mains here?

A. Mr. Edgerton did not mention anything about bridging.

Q. Very good. Will you mention something about it?

A. We are required to keep open every street we cross, and in running a line up an avenue we have a street every two hundred and sixty feet, and to keep that street open we naturally have got to bridge, bridge for both wagon traffic and for passengers.

Q. Did you find any allowance for bridging in Mr. Edgerton's estimates?

A. Not one cent.

Q. Now, in taking the length of pipe, Mr. Edgerton divides the length of three and four-inch pipe between what he calls old pipe of a certain weight and new pipe of a certain other weight. What is the fact as to that small pipe; is that new or are you laying that small pipe now?

A. I have been laying pipe for the Consolidated Gas Company for 25 years, and I have never used any other weight than what I have quoted in my testimony.

Q. But as to the size of pipe, are you putting in three, four or five-inch pipe now?

A. No, the only three or four-inch pipe I have laid in my time has been—it might possibly be called mains, but they are short lines down an alley or a courtyard, where there are three or four houses in the court or alley, a blind alley, we would run in place of a service pipe to supply these houses, and naturally a pipe that supplies four or five houses is called a main and not a service.

Q. But outside of that have you laid anything less than six-inch pipes since 1889?

A. No, sir; absolutely none.

Q. So that small pipes would all be old pipes?

A. All have been laid prior to my time.

5467 Q. Of course, it does not follow from that that the company is not using and cannot use three, four and five-inch pipe where it exists, to send gas through it?

A. Not at all.

Q. Of the thirty-inch pipe Mr. Edgerton assumed 60,000 feet to be old and 71,583 feet to be new, in estimating weights. As a matter of fact how much of that pipe was old, old before consolidation?

A. I can not give you offhand the only thirty-inch pipe that was in existence before consolidation.

Q. Just look and see the total. I do not care about the detail.

Mr. KIRBY: What do you mean by the old and new?

Mr. MATHEWSON: I am assuming Mr. Edgerton's estimate. He

said he estimated a certain amount was laid before 1884, when the lighter weights obtained.

Mr. KIRBY: You mean lighter weights used prior to that date?

Mr. MATHEWSON: Exactly so.

The WITNESS: I can tell you offhand what thirty-inch main was laid before consolidation. The only thirty-inch was a thirty-inch main that ran from 109th Street and Second Avenue to Sixtieth Street and Second Avenue, through Sixtieth Street to Lexington Avenue; outside of that the Municipal Company had one on Forty-sixth Street which ran from the Municipal Works at Forty-fifth Street and Eleventh Avenue to Forty-sixth Street and Third Avenue.

Q. Well, it is not over 20,000 feet or such a matter?

A. It is less than 20,000 feet all told.

Q. Of old thirty-inch pipe?

A. Of old thirty-inch pipe.

Q. Of the thirty-six-inch pipe Mr. Edgerton gave 11,000 feet as old and 11,242 feet as new. Is it not a fact that every inch of that has been laid within the past three years?

5468

A. A thirty-six-inch gas main was not known in New York up to three years ago. We laid the first one which was ever laid in New York.

Q. Mr. Edgerton has given in his computation or has assumed certain weights for pipe. Do you find that the weights for pipe which he assumed correspond with the actual weights of pipe that the company has employed?

A. In hardly a single instance does he agree with us at all.

Q. Have you prepared a schedule showing the size and weight of the pipe used in the Consolidated Gas Company?

A. I have.

Q. As compared with Mr. Edgerton's figures?

A. Yes. Shall I call them off?

Q. I do not think it is necessary. Supposing you say they are as follows:

The WITNESS: They are as follows:

Weights Per Foot of Cast Iron Pipe.

Size.	Con. Gas. Co. Includes hub.	Edgerton's Weights. Old.	New.
3-in.	13	11	12
4-in.	19	17	18
5-in.	0	0	0
6-in.	32	25	30
8-in.	44	38	44
10-in.	57	50	55
12-in.	74	58	72
16-in.	114	100	110
18-in.	136	120	130
20-in.	160	140	150
24-in.	215	185	200
30-in.	311	270	260
36-in.	425	360	360
48-in.	660	0	0

5469 Q. In other words, are the weights which Mr. Edgerton assumed in general smaller or larger than the weights the company has in the ground?

A. In practically every case they are a great deal lighter.

Mr. KIRBY: So I may understand this exactly, are these weights of Consolidated Gas Company, including hub?

The WITNESS: Yes; including the hub.

Q. For what pipes are they, old or new?

A. There is no old and new. We make no distinction. We have used the same weight for twenty-five years. There is no such thing as old and new.

Q. I see you have opposite the forty-eight inch main 660 pounds for the Consolidated Company weight and zero for Mr. Edgerton's weight. Did he give any weight for that?

A. He did not give any weight for that. I may say we had no forty-eight inch mains in the ground as of October 31, 1905.

Q. Now, of the six-inch pipe alone, practically half of the company's mains are of that size, are they not?

A. Yes, sir.

Q. And what weight does Mr. Edgerton give for six-inch pipes?

A. He gives for old twenty-five pounds per foot, and for new thirty pounds per foot.

Q. Whereas the weight which company actually uses is what?

A. Thirty-two pounds per foot.

Q. And if you take the weight given by him of the new mains it shows a difference of two pounds, and that minimum difference would amount to more than 400——

A. 4,000,000 pounds.

Q. To more than 4,000,000 pounds on the six-inch mains?

A. Yes sir; four and one-half million pounds, about.

Q. Now, Mr. Edgerton suggested that the reason for the use of heavier pipe, than he assumed was because pipe had become
5470 cheaper since it sold at $60, or $70, or $80, prior to consolidation. You say that there has been no change in weights?

A. In weights?

Q. Of pipe.

A. None.

Q. And what governs the weight of pipe which you require to put in the ground, the price of traffic conditions?

A. The weight is governed by external conditions that have to be contended with.

Q. Traffic conditions?

A. Traffic conditions, disturbance of the soil; as a matter of fact, with the things we have to contend with. If it was only a matter of internal conditions we could get along with stove pipe; it would be plenty heavy enough for our pressure.

Q. But, as a matter of fact, traffic conditions are burdensome in New York, heavy traffic?

A. Yes, sir. As a proof of that, in numerous cases we use thirty-six and forty-eight inch mains the same weight as water pipe is used, and I know of numerous instances in New York where thirty-six

inch and forty-eight inch Croton mains have been broken, not by internal conditions, because the pipe is tested anywhere from 250 to 300 pounds to the square inch, and they never have any more than seventy pounds, and in every case it has been due to external conditions.

Q. Now let me ask you, Mr. Simpson, whether the company uses any heavier pipe than your experience and knowledge has taught you is necessary to meet these conditions in New York City?

A. It certainly does not. It uses pipe—the weight of pipe we are using to-day results from numerous conferences between the Chief Engineer, Mr. Bradley, other engineers in the gas business in New York City, and other men taking care of gas mains.

Q. From your knowledge of New York conditions and New York traffic and the exterior conditions generally, would you consider it safe or advisable to put in lighter pipes than the company is now employing?

5471

A. I would not consider it safe at all.

Q. Now, Mr. Edgerton at page 4,042 of his testimony, in explaining some discrepancies, as I understand it, stated he figured his calculations on the short ton at $28.90 and that you figured on the long ton at the same price. Is that correct?

A. No, sir.

Q. What is the fact?

A. I figured on a short ton in every case. In no part of my testimony did I mention the long ton at all.

Q. Have you prepared and have you here a statement of the weight of the Consolidated Gas Company's pipe in the ground by size, mileage and net tons?

A. Yes, sir.

Q. The total is how much?

A. 122,018.4 net tons or short tons. It is as follows:

Size.	No. of feet main.	No. of feet pipe.	Weight per foot.	Net tons
1½-in	1,407	1,436	7 lbs.	5.0
2-in.	4,365	4,456	10 lbs.	22.3
3-in.	222,741	228,866	13 lbs.	1,487.6
4-in.	557,469	572,799	19 lbs.	5,441.5
5-in.	1,799	1,849	26 lbs.	24.0
6-in.	2,129,088	187,638	32 lbs.	35,002.2
8-in.	528,040	542,561	44 lbs.	11,936.3
10-in.	71,286	73,246	57 lbs.	2,087.5
12-in.	321,536	330,378	74 lbs.	12,223.9
16-in.	98,901	101,621	114 lbs.	5,792.4
18-in.	29,633	30,448	136 lbs.	2,070.5
20-in.	178,803	184,391	160 lbs.	14,751.2
24-in.	45,926	47,551	215 lbs.	5,111.7
30-in.	131,583	136,152	311 lbs.	21,171.6
36-in.	22,242	23,015	425 lbs.	4,890.7
Totals..	4,344,849	4,466,407		122,018.4

5472 Q. And in your computation you have figured on the short ton delivered to the dock, plus any cost of handling and stacking, have you?

A. And delivering to the work—no, I beg pardon, not on the value of the pipe. The value of the pipe I have figured the cost delivered on the dock and the carting to the yard and the stacking in the yard.

Q. The cost of the pipe to you before you send it out to the ditch?

A. Before it is sent out to the ditch?

Q. Have you prepared a schedule showing the extent of the error of Mr. Edgerton as to the weight of pipe?

A. Yes, sir.

Q. Comparing each size?

A. Yes, sir.

Q. And is this it (handing paper)?

A. Yes, sir.

Q. The first is the summary and the second paper is the detail?

A. Yes, sir. It is as follows:

5473 *Difference in Weights of Pipe as Used by Consolidated Gas Company and as Calculated by H. H. Edgerton.*

Size.	Total weight as calculated by Mr. Edgerton.	Total Weight Consolidated Gas Co. Standard.	Difference.
1½			
2	74,820	100,273	25,452
5			
3	2,572,892	2,895,633	322,741
4	9,784,442	10,591,911	807,469
6	58,870,000	68,130,816	9,260,816
8	21,732,000	23,233,760	1,501,760
10	3,770,730	4,063,302	292,572
12	21,050,592	23,793,664	2,743,072
16	10,429,000	11,274,714	845,714
18	3,732,290	4,030,088	297,798
20	26,020,450	28,608,480	2,588,030
24	8,891,200	9,880,540	989,340
30	34,811,580	40,922,313	6,110,733
36	8,007,120	9,452,850	1,445,730
	209,747,116	236,978,344	27,231,228

27,231,228 lbs. at $28.90 net ton.....$393,491.13

5474 Edgerton's total weight of pipe, claimed to include the 1½ in., 2 in., and 5 in., and with his excess of 20,000 feet of 4 in. corrected, is given as (p. 4060) 104,873,558 net tons or 209,747,116 lbs.

Calculating the mil-age of old and new pipe as apportioned by him, and on his weights, as follows (exclusive of 1½ in., 2 in. and 5 in.):

Size of pipe.	New.			Old.		
	Number of feet.	Weight per foot.	Total weight.	Number of feet.	Weight per foot.	Total weight.
1½						
2						
3	122,741	12	1,472,892	100,000	11	1,100,000
4	307,469	18	5,534,442	250,000	17	4,250,000
5						
6	1,129,000	30	33,870,000	1,000,000	25	25,000,000
8	278,000	44	12,232,000	250,000	38	9,500,000
10	41,286	55	2,270,730	30,000	50	1,500,000
12	171,536	72	12,350,592	150,000	58	8,700,000
16	53,900	110	5,929,000	45,000	100	4,500,000
18	17,633	130	2,292,290	12,000	120	1,440,000

	Size of pipe.	New. Number of feet.	New. Weight per foot.	New. Total weight.	Old. Number of feet.	Old. Weight per foot.	Old. Total weight.
5475	20	98,803	150	14,820,450	80,000	140	11,200,000
	24	25,956	200	5,191,200	20,000	185	3,700,000
	30	71,583	260	18,611,580	60,000	270	16,200,000
	36	11,242	360	4,047,120	11,000	360	3,960,000
	—	2,329,149		118,622,296	2,008,000		91,050,000

Gives a total of

New.....	118,622,296
Old	91,050,000
Total.....	209,672,296

which deducted from the 209,747,116 lbs. leaves 74,820 lbs., which presumably represents the total weight of the 1½ in., 2 in. and 5 in., not calculated in the above because no weight per foot has been stated.

Calculating this 1½ in., 2 in. and 5 in. on our weights, as follows:

1½ in.....	1,407 ft. at 7 lbs.....	9,849
2 in.....	4,365 ft. at 10 lbs.....	43,650
5 in.....	1,799 ft. at 26 lbs.....	46,774
		100,273 lbs.

5476 Q. And what does that show as to totals, in a word?

A. The difference between the weight used by the Consolidated Gas Company and those used by Mr. Edgerton amount to 27,231,228 pounds.

Mr. KIRBY: This is a calculation of the difference between the weight as given by Mr. Edgerton and the weights as given by Mr. Simpson?

Mr. MATHEWSON: Precisely.

The WITNESS: No, they are not the weights as given, but the weights actually used.

Mr. KIRBY: The weights which you testify were used and the weights which Mr. Edgerton assumes?

The WITNESS: They are the weights we have used.

Q. Now, what have you got to say as to Mr. Edgerton's estimate of width of cuts required for different sizes of pipe?

A. The widths are entirely too narrow.

Q. Is it possible to lay pipe in cuts of that width?

A. In some instances which he has given, the cut does not allow us to put the pipe in the trench.

Q. As an illustration, what?

A. On the sizes of eighteen, twenty, twenty-four, thirty and thirty-six inch, with a sheathed trench, there is not room even for the barrel of the pipe to go between the ranges, let alone the hub.

Q. Have you any modification to make in your estimate as to the width of trench actually required, after reading Mr. Edgerton's testimony?

A. None whatever.

Q. Is it often possible to lay any size of pipe on any of the streets of the city without coming in contact with some other sub-surface structures running parallel with it, which necessitates alterations or widening of the trench?

5477 A. With a gas pipe it is not, because with the gas pipe you are given a position by the city and you must take that position whatever is in your way.

Q. So far as the salt water mains of the city are concerned, what is the rule as to other pipes?

A. They go where they please.

Q. And are you compelled to remove your pipes?

A. We are in every instance that comes in their way.

Q. Furthermore, as to the laying of salt water mains, or other pipes by the city, may they lay them and do they lay them down the middle of the street?

A. They are laying the salt water mains now in the middle of the street in many instances.

Q. Is the company permitted to lay its pipe in the middle of the street?

A. No.

Q. What do you say as to Mr. Edgerton's statement, that it is practicable to put small sizes of cast iron pipe, such as three and four-inch, together, before lowering them into the trench?

A. I never heard of it done before he gave his testimony.

Q. Would you consider it practicable in New York City?

A. I would not dream of trying it.

Mr. BURR: That does not answer the question.

The WITNESS: Well, I do not consider it practicable at all.

Q. It would be a little different proposition if you were using screwed wrought iron pipe?

A. Yes, sir, that is frequently done; the pipe is screwed together and lowered into the trench.

Q. But in New York the pipe of your company is cast iron?

A. Cast iron, hub and spigot pipe.

Q. If you were to try to do that, lower it into the trench after screwing it together, would it be necessary to rub every joint and employ more men than it would in laying it otherwise?

A. It would cost a great deal more money than laying it
5478 otherwise. I do not believe you could lay it that way without having to re-caulk the joints.

Q. Would the cost be greater or less than laying it in the usual way?

A. It would be greater.

Q. What do you say as to Mr. Edgerton's assumption of sixty-seven cents as the price per cubic yard for cost of excavation?

A. We cannot get excavation done in New York City for that.

Q. Sixty-seven cents per cubic yard?

A. No, we cannot.

Q. Do you know that from experience?

A. I know that from experience.

Q. What are you paying at present for excavation?

A. We are paying on one contract to the contractor the actual price he is being paid by the city.

Q. What is that?

A. Ninety-five cents per cubic yard.

Q. That is on Ninth Avenue in connection with the alteration necessary to the gas pipes on account of laying the thirty-six inch Croton main, is it?

A. Yes, sir.

Q. Will you look at page 4051 of the testimony. Taking his width of trench and depth of trench as per his testimony on page 4051, his yardage of 900,126 cubic yards, plus 10 per cent. for bell holes, or a total of 990,140 cubic yards, that would be the total, would it not, in place of his 914?

A. He gives 990,000 yards, does he not?

Q. That total should be what?

A. According to my measurements it should be, in place of 990,-140.3 yards, 1,623,626.18 cubic yards.

Q. Now, Mr. Edgerton states that he computes rock excavation at $6 a yard, and on page 4,061 in giving his final figures, he computes 74,252 yards of rock as costing $371,770. Is that computation made at $6 per cubic yard, which he states?

A. No, sir; at $5 per cubic yard.

5479 Mr. KIRBY: It so states.

Mr. MATHEWSON: Precisely. He states on page 4,053

that rock excavation cost $6.00, and when he comes to compute he uses $5.00.

Mr. KIRBY: I called attention to that error at the time Mr. Edgerton put in his testimony, that he used $5.00 and that was the basis of his computation.

Mr. MATHEWSON: Look at page 4,053 and see if he does not say $6.00.

Mr. KIRBY: He did, and it was by reason of that that I, in opening the case on November 22nd, called attention to it and said it was $5.00 and not $6.00.

Mr. MATHEWSON: Very good, which is the unit that Mr. Edgerton actually desires to assume.

Mr. KIRBY: He has used $5.00 in his computation, and if he says $6.00 he intended to say $5.00.

Mr. MATHEWSON: Do you mean to say the first $6.00 was a clerical error or did he change his views?

Mr. KIRBY: Yes. He did not change his views.

Q. On page 4,061 Mr. Edgerton has expressed his views as to the amount of lead necessary and has stated the price which he assumes to be 5.75 cents per pound. Can lead be bought and handled for that money in New York?

A. It could not at the time Mr. Edgerton testified. The day before Mr. Edgerton testified we got quotations for the very trust lead that Mr. Edgerton quoted. Our quotations were 5.95 cents delivered in our yard.

Q. That excludes handling?

A. That excludes handling and storage and interest.

Q. And carting to the works?

5480 A. No, not carting to the works, but just the handling and storing in the yard and interset.

Q. What would you say would be a minimum cost of the lead, six cents, or more or less?

A. Six cents would be rather low than high.

Q. If you assume six cents per pound, and take your actual weight against Mr. Edgerton's assumed weight for lead, it would make a difference of how much for lead?

A. Mr. Edgerton figures a total of lead required for straight pipe and specials of 4,304,080 pounds at 5¾ cents a pound. Taking our actual weights as are being used to-day and have been used for the last twenty or thirty or more years, the weight of lead would be 6,542,015 pounds.

Q. A difference of how many pounds and how much in money—well, it would be a difference of how much in money?

A. $147,220.90.

Q. Do you use, Mr. Simpson, any more lead than your experience shows you is necessary?

A. We do not, sir.

Q. Now, referring to Mr. Edgerton's testimony on page 4062 as to the cost of laying pipe per running foot of the different sizes, what criticism have you to make of his figures in that regard?

A. On all sizes Mr. Edgerton is too low; he is especially low on the larger sizes, where he seems to have either disregarded the fact that a derrick gang is necessary or else has forgotten it.

Q. Have you here an actual statement of the cost of laying thirty-six inch mains from East One Hundred & Eleventh Street to West 131st Street?

A. I have.

Q. Will you state what the actual cost is in detail?

A. It is as follows:

5481 Thirty-six Inch Main from East 111th Street to West 131st Street Stations; length, 12,254 feet; laid in 1904.

The total cost of yarning, running and caulking the joints* on this line was $5,920.90,	
an average cost per foot of	$.4832

*The number of joints on this line was 1,208, an average of one joint every 10.14 feet. This is a transfer main, direct between the stations, with no connections en route, and the total number of joints is much less than would be the case with a distribution main, having specials set in at the intersecting streets.

Rolling the pipe to the skids, lowering it into the trench, entering, leveling and blocking up required force of,	
8 pipe and derrick men, $2.25 each	$18.00
2 men entering, levelling and blocking, $2.25 each	4.50
1 pipe and derrick foreman, $3	3.00
A total per day of	$25.50
This gang was engaged in the actual work of laying pipe for 133¾ days, equal to a total cost — $3,410,625 for 12,254 feet, or a cost per foot of	$.2783
Making a total cost per foot for laying and caulking of	.7615
As against Mr. Edgerton's estimate of	.2920
A difference per foot of	.4695

Q. Have you prepared a statement showing the difference upon Mr. Edgerton's figures as compared with the facts in laying the different sizes of pipe from six inches to thirty-six inches?

A. Yes, sir.

5482 Q. According to the mileage of the company?

A. Yes. It is as follows:

Mr. Edgerton's estimated cost per foot for laying and caulking pipe are much lower than this work can be done for in New York City.

Size.	Edgerton's price.	Cons. Gas Co. price.	Diff.	No. of feet.	Amount.
6	.043	.065	.022	2,129,088	46,839.94
8	.045	.089	.044	528,040	23,233.76
10	.0582	.105	.047	71,286	3,350.44
12	.0647	.152	.087	321,536	27,973.63
16	.0890	.220	.131	98,901	12,956.03
18	.1040	.265	.161	29,633	4,770.91
20	.1253	.320	.195	178,803	34,866.58
24	.1521	.425	.273	45,956	12,545.99
30	.2010	.570	.369	131,583	48,554.13
36	.2920	.762	.469	22,242	10,431.50
	A total difference of.....				$225,522.91

Q. Are you able to compare Mr. Edgerton's figures with actual bids to the city for laying pipe of similar size in connection with these water pipes?
A. Yes, sir.
Q. You might read it.

Mr. KIRBY: What knowledge has the witness of actual bids to the city?

Q. What knowledge have you of actual bids to the city?
A. This was obtained from the city contract clerk.

Mr. KIRBY: I object to it.
Mr. MATHEWSON: The city is a defendant.
Mr. BURR: What was the question?
(Question read.)
5483 Mr. BURR: Actual bids accepted by the city or merely proposals?

Q. Were they accepted by the city?
A. Bids accepted by the city.
Q. Will you state it?

The MASTER: Is your objection to the competency of it?
Mr. KIRBY: My objection, in the first place, is that it is not the best evidence, and in the second place, it is not relevant.
Mr. MATHEWSON: I suppose it is subject to verification. The city is certainly able to cross-examine on that.
The MASTER: I will allow it. Of course, if you insist on having the records of the city contract clerk brought here or having that clerk to produce those things——
Mr. KIRBY: No, I do not object to anything of that kind.
Mr. BURR: That, of Course, would be the best evidence, but I assume that Mr. Simpson is in a position to swear to the accuracy of what he is about to offer.
The WITNESS: I am not in this case, no sir.

Q. You had them got from the City Contract Clerk?
A. I had them got from the City Contract Clerk.

Mr. BURR: Then I object. If you bring some one here who got it from the clerk——

The MASTER: Yes.

The WITNESS: The man who got it is here.

Mr. KIRBY: We had to go to a great deal of trouble in
5484 bringing men down here from Danbury, who brought the oil down——

Mr. MATHEWSON: Do you object to it on this ground, Mr. Kirby.

Mr. BURR: I do not urge the technical objection, but I think at least you should have the man who got the paper from the Contract Clerk, to see that it is correct.

Mr. KIRBY: Take it subject to that testimony, as we did.

Mr. BURR: Yes, subject to confirmation by this man who obtained it.

The MASTER: That is the best way to do it.

Mr. MATHEWSON: Very good, perhaps that is shorter.

Q. Now, will you state, Mr. Simpson?

A. For laying six-inch pipe, Bid A, 16 cents per foot; Bid B, 16 cents per foot; Bid C, 20 cents per foot.

Q. What is Mr. Edgerton's allowance for the same?

A. I haven't it here on this.

Mr. KIRBY: Mr. Edgerton's allowance was for laying gas mains and not water pipes.

Mr. MATHEWSON: But it is the same thing, for laying.

Mr. KIRBY: No, it is not the same thing.

The WITNESS: For twelve-inch Bid A, 20 cents per foot; Bid B, 35 cents per foot; Bid C, 40 cents per foot.

Q. That is simply for the laying?

A. Laying the pipe, that is all.

Q. That is labor per lineal foot?

A. Labor only, yes. That is all Mr. Edgerton gives. Mr. Edgerton gives the laying of the pipe and caulking, without any other consideration.

Q. And the total including the labor per lineal foot, exca-
5485 vating and filling the trench per lineal foot, totals for the six-inch pipe, Bid A, 38.50; Bid B, 27.08; Bid C, 40?

A. Yes, sir; without paving.

Q. And the same as to the twelve-inch pipe, Bid A, 37; Bid B, 51, and Bid C, 66 cents?

A. Yes, sir.

Q. Also without paving?

A. Without paving.

Q. Have you the details showing the difference of $147,220.90 in the cost of the lead as between that actually used by the company and the weights used by Mr. Edgerton for lead?

A. Yes, sir. It is as follows:

5486 On Page 4062 Mr. Edgerton gives the weight of lead required for straight pipe..... 3,912,800 lbs.
plus 10 per cent. for lead in specials..... 391,280 lbs.

4,304,080 lbs.

4,304,080 lbs., calculated at 5¾ cents lb..... $247,484.60
As given in totals..... $223,000
+ 10 per cent..... 22,300
$245,300.00

Calculating on a joint every 10 feet (allowing for Specials), and on the weights per joint actually used by the Consolidated Gas Company, the total

Size.	No. of joints.	Weight per joint.	Total weight.
3	22,274	5	111,370
4	55,747	6	334,482
6	212,908	9	1,916,172
8	52,804	13	686,452
10	7,128	17	121,176
12	32,154	20	643,080
16	9,890	30	296,700
18	2,963	32	94,816
20	17,880	35	625,800
24	4,595	65	298,675
30	13,158	90	1,184,220
36	2,224	103	229,072

6,542,015 lbs.

At 6c lb., or..... $392,520.90

A difference of..... $147,220.90

5487 Q. Now, on page 4,063 Mr. Edgerton states that he allowed $2.14 for carting earth from the trench without dumping. What is the actual cost?

A. Fifty cents a yard.

Q. And for carting and dumping together about $1 a yard?

A. Carting about fifty cents and dumping about fifty cents.

Q. So in that case Mr. Edgerton is more than twice as high as the fact, isn't he?

A. Yes, sir.

Q. Have you the figures showing what difference that would make?

A. Some eighty-six thousand dollars.

Q. Now, Mr. Edgerton calculates the cost of replacing asphalt at $2.75 per square yard. Do you know what the City allows per square yard for pavement over the salt water mains?

A. Yes, sir.
Q. How much?
A. $3.50 a square yard.
Q. On page 4,067 and following, regarding the widths of trenches for salt water mains, Mr. Edgerton has selected some cases and presented them here, but has he shown in any case the width of asphalt required to be paid for by the contractors?
A. I cannot find any case where he has shown it.
Q. Have you taken any measurements as to the width of trench for these salt water mains on your own account?
A. Yes, sir; a number of them.
Q. Have you them here?
A. I have.
Q. Have you prepared a tabulation of those you have measured?
A. Yes, sir, those that I measured personally.
Q. Is that it (handing paper)?
A. Yes, sir. It is as follows:

5488 *Measurements of Pavement Openings for Trench for Salt Water Mains, Taken by Mr. C. C. Simpson, November 23rd, 1906.*

Location.	Width of cut only.	Pavement, kind.	Size main.	Edgerton's. Trench.	Repaving.
3rd Avenue, W. S. 45 ft. S. S. C. 14th St.....	9 ft.	Block...	24 in.		
3rd Avenue, W. S. 80 ft. S. S. C. 14th St.....	9 ft. 9 in.	Block...	24 in.	3 ft.	3 ft. 6 in.
3rd Avenue, W. S. 90 ft. N. N. C. 13th St.....	12 ft. 9 in.	Block...	24 in.		
3rd Avenue, W. S. 80 ft. S. S. C. 13th St.....	8 ft. 9 in.	Block...	24 in.		
3rd Avenue, W. S. 30 ft. N. N. C. 12th St..... Narrowest bet. 12th and 14th Streets.	7 ft. 2 in.	Block...	24 in.		
13th Street, 20 ft. W. W. C. 3rd Ave...	7 ft. 6 in.	Block...	24 in.		
13th Street, 50 ft. W. W. C. 3rd Ave...	5 ft. 3 in.	Block...	24 in.		
13th Street, 80 ft. W. W. C. 3rd Ave...	5 ft. 4 in.	Block...	24 in.		
13th Street, 200 ft. W. W. C. 3rd Ave..	4 ft. 8 in.	Block...	24 in.		
12th Street, 25 ft. W. W. C. 3rd Ave...	4 ft.	Asphalt.	12 in.	2 ft. 4 in.	2 ft. 10 in.
17th Street, 280 ft. E. E. C. 5th Ave. ..	8 ft. 5 in.	Asphalt.	12 in.		
17th Street. 240 ft. E. E. C. 5th Ave ..	8 ft.	Asphalt.	12 in.		
17th Street. 200 ft. E. E. C. 5th Ave...	4 ft. 6 in.	Asphalt.	12 in.		
17th Street. 165 ft. E. E. C. 5th Ave...	5 ft. 6 in.	Asphalt.	12 in.		
5th Avenue, W. S. 70 ft. N. N. C. 20th St.....	7 ft. 8 in.	Asphalt.	24 in.		
5th Avenue, W. S. 125 ft. N. N. C. 20th St....	7 ft. 8 in.	Asphalt.	24 in.		
5th Avenue, W. S. 50 ft. S. S. C. 21st St.....	8 ft. 1 in.	Asphalt.	24 in.		

5489 Q. Now, this paper which you have just presented shows the actual width of cut which you measured as compared with the width of trench and repaving which Mr. Edgerton has assumed, does it not?

A. Yes, sir.

Q. For instance, I find the first one, the width of cuts, Third Avenue, west side, near Fourteenth Street, the width of cuts you measured was 9 feet, that is exclusive of any additional width in repaving, is it not?

A. Yes, sir, that is the actual width of the trench.

Q. What was the width allowed by Mr. Edgerton, three feet?

A. Three feet.

Q. Another one on Third Avenue near Fourteenth Street, the width is 9 feet 9 inches, is it not, against Mr. Edgerton's three feet again?

A. Yes, sir.

Q. And what is the width allowed by Mr. Edgerton in each of those cases? I see you have only put down the width once to cover a large number.

A. There are only two sizes of pipe given here, that is 12-inch and 24-inch, and 3 feet is the width for 24-inch and 2 feet 4 inches for a 12-inch pipe.

Q. Assumed by Mr. Edgerton?

A. Yes, sir. You will see these are all 12-inch where this starts, and these are all 24-inch, the three-footers (indicating).

Q. Mr. Edgerton criticises the width of a cut which you allow, and I want to ask you whether in actual fact the width that you allow is as much as the charges of the Asphalt Company which you have paid on the average?

A. The width of trench repaving that I have allowed falls in a great many cases far short of what we have had to pay the asphalt companies.

Q. And on the average?

A. Even on the average I think it is rather below it than above it.

Q. Referring to the 30-inch main which the company is laying in 136th Street from Lenox Avenue to Seventh Avenue, a
5490 distance of 750 feet, what have you to say as to the facts shown there as against Mr. Edgerton's estimate?

A. That was a main which was laid some years ago, it is not being laid now.

Q. Yes, laid some years ago.

A. The asphalt paid for by the Consolidated Gas Company measured 5.9985 feet in width, as against Mr. Edgerton's estimate of 4.1 feet.

Q. Now, have you any photographs here of these trenches which you measured or any that you examined, referring to the salt water mains regarding which photographs and measurements were presented by the defendants?

A. Yes, sir. The first one I have was taken on Third Avenue, between Thirteenth and Fourteenth streets, the first item on that sheet.

The width is on the back, and our width of trench and Mr. Edgerton's width of trench is given.

Q. Just state the width.

A. On Third Avenue, west side, 45 feet south of south curb of Fourteenth Street, actual width is 9 feet for a 24-inch salt water main. Mr. Edgerton's trench width 3 feet; the Consolidated Gas Company's width 5 feet for that size pipe. I might say that that is a 6 foot rule I am holding.

Q. And that is a temporary pavement?

A. That is a temporary pavement, that is pavement just put down, hand-paved, over the actual trench.

Q. As a matter of fact, is the repaving done by the city or by the asphalt company immediately after the gas company fills its trench, on putting down a gas pipe?

A. No, some of the cases Mr. Edgerton testified to in his testimony months ago have not been repaved yet.

Q. What is the effect of leaving these trenches with temporary pavement which the gas company has to put over the trench
5491 awaiting the final repaving on the edge of the trench?

A. Both edges of the trench are worn away.

Q. And broken down?

A. And broken down, and it is necessary to repave a wider trench than otherwise would be necessary.

Mr. MATHEWSON: I offer that in evidence.

Photograph received and marked Complainant's Exhibit 271.

Q. Does this correctly represent the width of the trench as shown by the temporary paving which is in the middle of the picture?

A. It does.

Q. Take the next one, Mr. Simpson?

A. Fifth avenue in front of No. 160. The cut varies in width from seven feet four inches to eight feet one inch for a twenty-four-inch salt water main. Mr. Edgerton allows three feet width of trench, and the Consolidated Gas Company five feet.

Mr. MATHEWSON: I offer that in evidence.

Photograph received and marked Complainant's Exhibit No. 272.

The WITNESS: This is Fifth Avenue between Seventeenth and Eighteenth Streets, the width of cut is nine feet ten inches for twenty-four-inch salt water main. Mr. Edgerton allows three feet, the Consolidated Gas Company asks for five feet, and there is the asphalt plainly shown there.

Mr. MATHEWSON: I offer that photograph in evidence.

Photograph received and marked Complainant's Exhibit No. 273.

Q. Take the next one.

A. Fifth Avenue, south curb of Twenty-first Street, width of trench, eight feet one-inch for a twenty-four-inch salt water
5492 main. Mr. Edgerton's width three feet; the Consolidated Gas Company five feet.

Mr. MATHEWSON: I offer that in evidence.

Photograph received and marked Complainant's Exhibit No. 274.

The WITNESS: The next is Third Avenue, west side, fifty feet south of south curb of Fourteenth Street, width of trench nine feet for twenty-four-inch salt water main. Mr. Edgerton allows three feet and the Consolidated Gas Company five feet.

Mr. MATHEWSON: I offer that in evidence.
Photograph received and marked Complainant's Exhibit No. 275.

The WITNESS: The next is Ninth Avenue, fifty feet north of the north curb of Sixteenth street; *twenty-* thirty-six-inch water main; width of trench seven feet three inches. Mr. Edgerton's width four feet; Consolidated Gas Company's six feet six inches. That pipe is now being laid and the trench is still open.

Mr. MATHEWSON: I offer that in evidence.
Photograph received and marked Complainant's Exhibit No. 276.

Q. What is the next one?
A. Third Avenue, west side, ninety feet north of north curb of Thirteenth Street. Width of trench twelve feet nine inches for a twenty-four-inch salt water main. Mr. Edgerton's width three feet; Consolidated Gas Company's five feet.

Mr. MATHEWSON: I offer that in evidence.
Photograph received and marked Complainant's Exhibit No. 277.

The WITNESS: Here are two photographs that belong in a
5493 pair. In the one case it is the trench that opens up on top, and the other is the same location and shows the width to which the trench had to be repaved when they got through.
Q. The first one showing the width on top refers to what place?
A. Gansevoort Street west of Hudson, twelve feet west of the west curb, looking east. Twelve-inch main.

Mr. MATHEWSON: I offer that in evidence.
Photograph received and marked Complainant's Exhibit 278.

The WITNESS: And that is the same place, but showing when they got through, that they had to repave that much.

Mr. MATHEWSON: I offer that in evidence.
Photograph received and marked Complainant's Exhibit No. 279.

Q. In other words, is it not true that the opening at the cut does not represent the full width of the opening down below, by reason of cave-ins and so forth, frequently?
A. In no case does the repaving have any reference at all to the width of the cut on top. With all the asphalt companies and all the Pacific and granite block pavement, if we open a cut two feet on top, and undermine the bank on each side, they allow for repaving it, repaving the entire width of the widest part of the trench, the same as shown in that case there. They are three or four feet wide, and they have to repave seven or eight feet.
Q. The last two exhibits you referred to?
A. Yes.

Mr. MATHEWSON: Perhaps we do not need to offer any others. We have some others.

5494 Q. You do not claim that every part of the trench for a salt water main is of this same width?

A. No, sir.

Q. But this is what goes to make up the average?

A. Yes, sir.

Q. And is it not true that cuts for putting down mains of any kind, as a rule, are ragged more or less and irregular, so that you have to cut out in repaving more than the width of the trench?

A. In connection with that, here is a very good proof of that in this photograph here.

Mr. MATHEWSON: I will offer that in evidence as illustrating the witness's statement.

Photograph received and marked Complainant's Exhibit 280.

Q. Describe the place, if you will?

A. Fifth Avenue, eighty feet south of the south curb of Nineteenth Street, twenty-four-inch salt water main. The trim for the asphalt on the west side is six inches and east side five inches, against Mr. Edgerton's allowance of three inches on each side. The actual width and the irregularity are not shown at all. It is taken just to show the——

Q. In other words, the measurement you have just given is in the narrow part where you saw the measurements made?

A. It only shows the width of the trim of the asphalt. This is the trim where it is trimmed off of the concrete five inches on one side and six on the other.

Q. Now, taking for a further example the large main laid downtown in 1904, before any investigation was had; the width allowed by Mr. Edgerton for the ditch would be 4.1 feet?

A. Yes, sir.

Q. And what was the actual width average of the repaving?

A. The actual width of repaving was 8.08 feet.

5495 Q. Or, in round figures, twice Mr. Edgerton's allowance?

A. Twice Mr. Edgerton's allowance, and more than what I called for.

Q. And do you remember what the average price of that asphalt pavement was there?

A. $3.44 per square yard.

Q. Have you any cuts or drawings, Mr. Simpson, illustrating the width of trench as compared with the size of the pipe which is being put in, allowing only the margin which Mr. Edgerton says is proper?

A. Yes, sir; they are big drawings. That is the full size drawing of the trench and pipe.

Q. To scale?

A. Well, it is the full size of the scale, you know. That is the actual size of it; the large circle is the hub.

Q. And the shaded circle is the——

A. Is the barrel of the pipe.

Q. What would be the width of the trench which Mr. Edgerton allowed?

A. 2.33 feet is the width given there—2⅓ feet.

Q. In sheathing that trench, how wide sheathing do you have?

A. I have allowed for two-inch sheathing, which is the smallest I or anybody else would use that knew about the business, and three-inch ranges.

Q. Is that the situation you frequently meet where you would have to use that sheathing?

A. Very frequently.

Q. Would the pipe go in that trench?

A. The pipe you see (indicating on sketch) would not pass the ranges.

Q. Would the hub of the pipe go in with the sheathing even if there were no ranges?

A. The hub of the pipe would not pass the sheathing even.

Mr. MATHEWSON: I offer this in evidence.

Received in evidence and marked Complainant's Exhibit 281.

5496 Q. Now let us see another pipe.

A. (Producing another sketch.) This is drawn to the full scale, twenty-inch pipe; two feet——

Q. The same result follows here?

A. The same result, that the barrel of the pipe would not pass inside the ranges, and the hub of the pipe would not go inside the sheathing.

Mr. MATHEWSON: I offer this in evidence.

Received in evidence and marked Complainant's Exhibit 282.

Mr. MATHEWSON: I will simply offer those other pipes, and I ask you to answer as to the thirty-six inch pipe.

Q. State about the blocking and wedges?

A. Mr. Edgerton has not allowed in any case one cent for blocking and wedging, which has to be used in every instance, especially on the larger sizes of pipes. All the sheathing and ranges are drawn to full scale.

The diagrams as to the twenty-four inch pipe, thirty inch pipe and thirty-six inch pipe are now offered in evidence.

Received in evidence and marked Complainant's Exhibit- 283, 284 and 285, respectively.

Q. (Indicating Exhibit 285.) This is the thirty-six-inch?

A. Yes, sir. There (indicating) is the line of the ranges, and there is the outside barrel of the pipe. You see there the entire distance between the outside of the pipe, and the hub is three inches, whereas the bottom or rammer takes up five inches, and no rammer could pass through there at all, and the barrel of the pipe even would not pass those ranges.

Q. So that you have to have a rammer to get down in there?

A. I have got to have room to put a man in there and use a rammer.

5497 Q. And there is about an inch left and no space at all left to put the rammer in?

A. That's it.

Q. Have you a rammer here?

A. I have.

Q. Let us see it, such as you would use for the thirty-six-inch main?

A. This (producing a long, wooden object) is a dummy rammer, actual measurement of the other one, and it is the standard rammer in this country to-day—in this city and country, which measures a little over five and one-half inches—five and three-quarter inches. It is round, you know.

Q. And that has to be used in what way?

A. That is used straight up and down like that for ramming (indicating). The tamping bar——

Q. How long is the bar?

A. This is the actual length.

Q. Well, about how long?

A. About five feet long.

Q. The man who rams has to get his rammer down at some sort of an angle?

A. Yes, the rammer is held at an angle like that (indicating).

Q. An angle of say fifteen degrees?

A. Pretty nearly forty-five degrees.

—. In order to ram it down thoroughly?

A. In order to get under the farthest barrel of the pipe.

Q. Now, this that you have produced is a regular rammer (indicating an iron implement brought into the room)?

A. A standard rammer as used by our company and practically all the gas companies in the country to-day.

Q. And the head of the rammer is circular?

A. Yes.

Q. What diameter?

A. Five and one-half inches full, or five and three-quarters.

Q. And the rod is an inch and a half?

A. About an inch and a quarter.

Q. You have to get that rammer in underneath the pipe?

5498 A. Underneath the lowest edge of the most extreme curve of the pipe.

Q. Mr. Edgerton spoke something about laying a pipe by puddling or puddling in connection with the relaying of the pipe. What is puddling in refilling?

A. Puddling is throwing in the earth loose, and then filling the cut with water, like a water settling of the earth.

Q. What do the rules of the Street Department or of the Department of Highways, whatever Department has charge in the City of New York, require as to refilling?

A. The rules themselves do not forbid puddling, but we have been repeatedly forbidden to puddle, and the rules themselves specify how the back fill shall be put in. I have got the regular rules here.

Q. Of the City of New York?

A. Yes, sir. "General Rules and Instructions for Opening and Refilling Trenches Made by Private Corporations and Individuals. Issued for the Guidance of Inspectors," by William Brookfield,

Commissioner of Public Works. They have never been altered since; they are the same rules in force to-day.

Q. The Commissioner of Public Works in the City of New York?

A. Yes, sir.

Mr. BURR: I object to that as not competent evidence, not proper proof of the existence of those rules.

The WITNESS: They are in existence to-day.

The MASTER: For the sake of convenience in view of the witness' statement I will take it as it is, and then you can have formal proof submitted, Mr. Mathewson, if it is insisted upon.

Mr. MATHEWSON: We insist that this is proof. These are rules that have been delivered to us by the Department of Public Works of the City of New York, which have never been revoked.

5499 Mr. BURR: You are trying to prove the adoption of certain rules at a certain time and their continued existence up to a certain time.

Mr. MATHEWSON: No. A state of affairs once proved to exist is presumed to continue.

Mr. BURR: You have not proved they were legally adopted.

The WITNESS: I asked the question of Chief Engineer Olney of the Department of Highways three weeks ago, and he told me that puddling absolutely would not be permitted in any instance.

Mr. BURR: Exception.

The MASTER: I will dispose of it in that way. If it is insisted upon it will be easy enough to produce somebody here from the department.

Mr. BURR: Exception.

The WITNESS (reading): Rule No. 3. "The refilling of the trenches must be done in horizontal layers of from four to six inches, which must be thoroughly compacted by hand ramming until it is firmly and sol-dly replaced. There shall be two rammers to one shoveller, and in case the refilling is thrown in faster than it can be rammed, the inspector must stop the shovelling until the ramming is satisfactory."

Q. Is that a quotation from the rules delivered by Mr. Brookfield, Commissioner of Public Works of the City of New York?

A. Yes, sir; and embodied in my rules in my department, of which you have got a copy there.

Q. Have those rules ever been changed?

A. Never, sir.

Q. As to the depth of pipe required by the city, have you a proposal or bids or estimates issued by the City of New York in 1905, providing for the depth of pipe and the filling underneath?

5500 Mr. KIRBY: What kind of pipe?

Mr. MATHEWSON: Water pipe.

Mr. KIRBY: I object.

The MASTER: That is preliminary, I suppose. We will wait and see what is to be brought out.

A. I have.

Mr. BURR: As I understand, this paper handed Mr. Simpson is a blank proposal issued by the city to the contractors, and there is no evidence at all that it has any bearing upon the laying of gas pipes. It may have been for some special situation that the commissioner of that department was called upon to get specially for this form. No proof that whatever clause is in that proposal is a general clause adopted by all departments where laying of pipes is concerned.

Mr. MATHEWSON: Isn't it some evidence of what this city considers the proper depth below the surface of the pipe to free it from settlings of the surface?

The MASTER: No, I do not think so, Mr. Mathewson.

Mr. MATHEWSON: Very good. I understand the Master thinks it is not competent, and I therefore will not press it.

Q. At page 4089 Mr. Edgerton states he did not know it was ever necessary to go under sewers in laying gas pipes. What is the fact in the island of Manhattan?

A. It is very rarely we can cross an avenue to-day with any pipe larger than eighteen inch without having to go under one, and sometimes even three sewers.

Q. How deep do you sometimes have to go below the surface in cases of that kind?

A. Sometimes reach a depth of close onto or full twenty feet.

Q. Now, certain testimony was presented here by Mr.
5501 Midgely, saying that he had measured the depth of a certain number of mains of the company at street corners, and he found these depths to be two feet to two feet and two inches, in certain cases, which were about one-third of the number of measurements that he made. Have you examined those instances in which he found the depth as little as I have stated?

A. I have not been on the spot.

Q. No, but have you examined this list?

A. Yes.

Q. Do you find every one of those to be at a street corner or crossing?

A. Yes, sir.

Q. What is the case at a street corner or crossing, which brings the pipe higher than the average, if it is brought higher?

A. Well, at practically every street crossing in Manhattan there is so much congestion that it is a question of taking any gas pipe of any account over everything, or under everything. There is no room to get through, and the practice with small pipes where you can still maintain some cover is to go over. With a large pipe where no cover could be maintained it is best to go under everything.

Q. And these are small pipe?

A. In every instance, except the twenty inches, small pipes.

Q. And would you consider that the fair average of the depth at which pipe is carried between streets?

A. It certainly is not.

Q. And the larger pipes, you say, have to go down under?

A. Down under everything.

Q. Is that the reason none of the large pipes are found here in these schedules?

A. Probably, yes.

Mr. BURR: I object to that answer. If he does not know, he can say so. And I move to strike it out.

Answer stricken out.

Mr. MATHEWSON: I will put the question in another way.

5502 Q. Would measurements of this character and of that depth reveal or disclose the larger and more expensive pipes that have to go underneath?

A. In very rare cases only.

Q. How about crossing avenues where electric companies are now operating with the underground trolley? Do you not have to go underneath?

A. Yes, sir.

Q. Mr. Edgerton at page 4,090 advanced a suggestion that in taking out rock, stone is salable. Is this the case as to such rock as you excavate in New York?

A. I have never sold a square inch. I never knew of a square inch of rock being sold from a trench in New York City.

Q. Is it of a character which is salable?

A. No, sir; it is not.

Q. Is it possible, in laying your mains here, to blast off rock in great masses, so that it can be sold for any purpose like building?

A. No, sir; it comes off, in every case in a trench of that character, in small pieces.

Q. Have you ever been able to sell the rock?

A. No, sir; never.

Q. Have you tried to make sales of rock and see what could be obtained for it?

A. We have always tried to get the cheapest price we could for having it carted away.

Q. Have you tried to sell it sometimes?

A. I don't remember having tried to sell it.

Q. Have you ever received any bid for it?

Mr. BURR: He says he never tried to sell it.

Mr. MATHEWSON: I ask, have you ever received any bid for rock of that kind?

The WITNESS: No, sir.

Q. Mr. Edgerton allowed nothing for the carting and dumping of the rock. The number of yards excavated by him at
5503 $1.00 a yard, how much would that amount to?

A. Fifty cents a yard for cartage and fifty cents a yard for dumping. $74,252.

Q. Mr. Edgerton, at page 4,105, made the suggestion that the asphalt company had made arrangements for repaving the trench for less cost than the contract price was here. Have you ever had any experience of that kind?

A. Never, sir.

Q. Has the company ever, during your experience, been able to pay a cent less than a contractor was allowed to charge by the City?
A. Never one cent.
Q. Have you produced here, accurate to scale, sketches showing the condition of certain streets in New York City at certain points?
A. They are all avenues at certain crossings; yes, sir.
Q. Showing the difficulties in the way of the crossing of the street with pipes of the Gas Company?
A. Yes, sir.
Q. How many of them are there?
A. I don't really remember how many there are.
Q. This one is Broadway and Bleecker Street, looking North?
A. Yes, sir.

Mr. MATHEWSON: I offer that in evidence.
Mr. BURR: One moment.

By Mr. BURR:

Q. Did you make these sketches yourself?
A. They were made under my supervision.
Q. From measurements taken by you?
A. No, sir; measurements taken under my orders.
Q. Can you specify, of your own knowledge, that the measurements appearing upon these charts or diagrams are correct?
A. I haven't any doubt but what they are correct.
Q. Can you swear they are correct?

Mr. MATHEWSON: I suppose every drawing you put in
5504 here was not drawn in every line by your witness, was it?

A. These drawings were all made by employés in my department, under my direction.
Q. Were you present when the measurements were made in each case?
A. I was not; no, sir.
Q. Therefore you cannot say that the measurements as they appear upon these charts or diagrams are correct dimensions or measurements. You believe they are, but you don't know, isn't that the fact?
A. I think that is right.

Mr. BURR: Well, I object to them.
The MASTER: If that objection is pressed I will receive them on the same understanding as before, and you will have to bring somebody here who made the measurements before you get through, Mr. Mathewson.
Mr. BURR: Exception.
Received in evidence and marked Complainant's Exhibit 286.

By Mr. MATHEWSON:

Q. What is this one?
A. West Broadway at Canal Street, looking North.

Mr. MATHEWSON: I offer it in evidence.
Received in evidence and marked Complainant's Exhibit 287.

Q. I will ask you as to all of these if you are yourself familiar from your records or data with the fact that the sub-surface structures appearing here are in the street, and with the general location of them—I mean in these various sketches?

A. Yes, sir.

Q. And, without exact exact measurements, do they con-
5505 form generally to your knowledge of the situation there?

A. My general knowledge only. Of course, I have no detailed knowledge of every corner.

Q. This is Broadway at Morris Street, looking north, isn't it?

A. Yes, sir.

Mr. MATHEWSON: I offer this one in evidence.

Received in evidence and marked Complainant's Exhibit 288.

Q. This one is Sixth Avenue and Fourteenth Street, is it?

A. Yes, sir.

Mr. MATHEWSON: I offer it in evidence.

Received in evidence and marked Complainant's Exhibit 289.

Q. This sheet is Third Avenue and Fourteenth Street, looking North, is it?

A. Yes, sir.

Mr. MATHEWSON: I offer it in evidence.

Received in evidence and marked Complainant's Exhibit 290.

Q. The paper you now present represents Fourth Avenue at Fourteenth Street, showing the subway going across the entire street from houseline to houseline, doesn't it?

A. Yes, sir.

Mr. MATHEWSON: I offer that in evidence.

Received in evidence and marked Complainant's Exhibit 291.

Q. Also this one shows Ninth Avenue at Fourteenth Street, looking north?

A. Yes, sir.

Mr. MATHEWSON: I offer that one in evidence.

Received in evidence and marked Complainant's Exhibit 292.

5506 Q. And this is Twenty-third Street and Second Avenue, looking north, is it?

A. Yes, sir.

Mr. MATHEWSON: I offer that in evidence.

Received in evidence and marked Complainant's Exhibit 293.

Q. Referring to the last exhibit, Complainant's Exhibit 293, what room does that show for more pipe?

A. It shows that as far as the street is concerned between curb lines, that there is no room, unless one went under everything, to lay even a three-inch pipe and get any cover on it.

Q. And this paper you now show me is Second Avenue and Forty-second Street?

A. Yes, sir; the same conditions exist there.

Mr. MATHEWSON: I offer that in evidence.

Received in evidence and marked Complainant's Exhibit 294.

Q. These sketches or drawing which have just been offered are only a few of many that have been made under your supervision, are they not?

A. They are.

Q. And do they show generally and substantially similar conditions in various parts of the city?

A. At every crossing of every avenue in New York City, south of 125th Street.

Q. And these are merely illustrative that you have introduced?

A. Yes, sir.

Q. Now, referring to the testimony that you have just given, have you prepared in convenient shape the calculation showing the difference in cost of paving between the cost as the company has found it and Mr. Edgerton's estimate?

A. Yes, sir; it is as follows:

5507 Mr. Edgerton states (p. 4066) that "the cost of the asphalt and equivalent pavement was.....	$2,883,664.32
Based on 90 per cent of the mileage of each size, with an allowance of 6 in. over and above the trench widths stipulated by him, at $2.75 per square yard. Based on the above figures, the number of square yards (excluding the 1½ in., 2 in. and 5 in. pipe, which he claims has been included in his total, but which has been disregarded here because he gives no trench widths), would be 1,090,572.5 square yards at $2.75..	2,999,074.37
or, by his own figures, a shortage of.....	115,410.05
Calculating the repaving required on 90 per cent. of the mileage of each size, at the widths submitted by Mr. Simpson, and a cost of $3.25 per square yard, the total would be 1,448,744.3 square yards at $3.25..	4,708,418.98
Deducting Mr. Edgerton's figures as given on p. 4066, and above.....	2,883,664.32
A difference of for paving alone of.....	$1,824,754.66

(The detailed calculation of these items will be found below.)

5508 CONSOLIDATED GAS COMPANY. MR. H. H. EDGERTON.

Size.	Total feet of trench.	Width of repaving.	Total square feet.	Width of trench.	Total square feet.
1½	1,407	2 ft. 6 in.	3,165.7		
2	4,365	2 ft. 6 in.	9,826.3		
3	222,741	3 ft. 0 in.	601,400.7	1 ft. 10 in.	367,455.8
4	557,469	3 ft. 0 in.	1,505,166.3	1 ft. 10 in.	919,656.6
5	1,799	3 ft. 0 in.	4,857.3		
6	2,129,088	3 ft. 0 in.	5,748,537.6	1 ft. 10 in.	3,512,356.5
8	528,040	3 ft. 6 in.	1,663,326.0	2 ft. 0 in.	950,472.0
10	71,286	3 ft. 6 in.	224,550.9	2 ft. 1 in.	133,447.4
12	321,536	3 ft. 6 in.	1,012,838.4	2 ft. 4 in.	674,260.9
16	98,901	4 ft. 0 in.	356,043.6	2 ft. 4 in.	207,395.4
18	29,633	4 ft. 0 in.	106,678.8	2 ft. 4 in.	62,140.4
20	178,803	4 ft. 6 in.	724,152.2	2 ft. 6 in.	402,306.7
24	45,956	5 ft. 6 in.	227,482.2	3 ft. 0 in.	124,081.2
30	131,583	6 ft. 0 in.	710,548.2	3 ft. 7¼ in.	426,328.9
36	22,242	7 ft. 0 in.	140,124.6	4 ft. 0 in.	80,071.2
			13,038,698.8 square ft.		7,859,973.0 square ft.

1,448,744.3 square yds.
at $3.25
$4,708,418.98

To which is added 90 per cent. of the total mileage, at a width of 6 in..... 1,955,182.0 square ft.

9,815,155.0 square ft.

1,090,572.5 square yds.
at $2.75
$2,999,074.37

NOTE.—These calculations are based on 90 per cent. of the total feet of trench.

5509 The WITNESS: Mr. Edgerton, taking his average of trench width at $2.75 per square yard, allows $2,883,664.32. His figures would reach according to his own calculation $2,999,074.37, and taking his own width of trench and his own price at $2.75 per yard, or by his own figures, a shortage of $115,410.05. Taking this repaving at the width of trench as given by him and a price of $3.25 per square yard, it would amount to $4,708,418.98, or $1,824,-754.66 in excess of Mr. Edgerton's figures.

Q. Your statement is now the summary of the detail which has been spread upon the record?

A. Yes, sir.

Q. Have you also prepared the figures showing the difference between Mr. Edgerton and the actual cost to the company as to excavation?

A. I have shown the difference between the figures of Mr. Edgerton's excavation and the figures as given by him in my testimony. They are as follows:

PAGE BOUND VERTICAL IN BOOK

5510 CONSOLIDATED GAS COMPANY'S DIMENSIONS.

	Trench. Total feet.	Width.	Depth.	Cubic feet.
1½	1,407	2 ft. 0 in.	2 ft. 10½ in.	8,074.25
2	4,365	2 ft. 0 in.	2 ft. 11 in.	25,494.84
3	222,741	2 ft. 6 in.	3 ft. 0 in.	1,670,558.33
4	557,469	2 ft. 6 in.	3 ft. 1 in.	4,292,510.44
5	1,799	2 ft. 6 in.	3 ft. 2 in.	14,256.19
6	2,129,088	2 ft. 6 in.	3 ft. 3 in.	17,298,847.22
8	528,049	3 ft. 0 in.	3 ft. 5 in.	5,417,490.40
10	71,286	3 ft. 0 in.	3 ft. 7 in.	756,618.80
12	321,536	3 ft. 0 in.	3 ft. 9 in.	3,617,287.50
16	98,901	3 ft. 6 in.	4 ft. 1 in.	1,412,307.86
18	29,633	3 ft. 6 in.	4 ft. 3 in.	440,795.83
20	178,803	4 ft. 0 in.	4 ft. 5 in.	3,161,242.93
24	45,956	5 ft. 0 in.	4 ft. 9 in.	1,091,444.44
30	131,583	5 ft. 6 in.	5 ft. 3 in.	3,799,468.79
36	22,242	6 ft. 6 in.	5 ft. 9 in.	831,309.05
				43,837,906.87 cubic feet.
				1,623,626.18 cubic yards.

1,623,626.18 cubic yards
@ $.95

$1,542,444.87 | $1,542,444.87

154,244.48

+ 10 per cent. for Bell Holes = $1,696,689.35

Edgerton's total cost for excavation (900,126 cubic yards + 10 per cent. for bell holes) is 990,140.3 yds. at 67c. or..... 663,394.15

A difference of..... $1,033,295.20

5511 FIGURES USED IN EDGERTON'S CALCULATIONS.

Size.	Width of trench in feet.	Depth in feet.	Cubic yards per foot.
3	1.833—1 ft. 10 in.	2.25—2 ft. 3 in.	1.52
4	1.833—1 ft. 10 in.	2.33—2 ft. 4 in.	1.58
5			
6	1.833—1 ft. 10 in.	2.50—2 ft. 6 in.	1.69
8	2. —2 ft. 0 in.	2.66—2 ft. 8 in.	1.97
10	2.08 —2 ft. 1 in.	3.00—3 ft. 0 in.	2.31
12	2.33 —2 ft. 4 in.	3.20—3 ft. 2½ in.	2.76
16	2.33 —2 ft. 4 in.	3.33—3 ft. 4 in.	2.87
18	2.33 —2 ft. 4 in.	3.53—3 ft. 6 in.	3.04
20	2.50 —2 ft. 6 in.	3.80—3 ft. 9½ in.	3.52
24	3.00 —3 ft. 0 in.	4.00—4 ft. 0 in.	4.44
30	3.60 —3 ft. 7¼ in.	4.60—4 ft. 7¼ in.	6.12
36	4.00 —4 ft. 0 in.	5.00—5 ft. 0 in.	7.14

TRENCH DIMENSIONS.

	CONSOLIDATED GAS CO.		MR. H. H. EDGERTON.	
Size.	Width.	Depth.	Width. Feet in decimals.	Width. Feet and inches.
1½ in.	2 ft. 0 in.			
2 in.	2 ft. 0 in.			
3 in.	2 ft. 6 in.	3 ft.	1.833—1 10	2.25—2 3
4 in.	2 ft. 6 in.	3 ft.	1.833—1 10	2.33—2 4
5 in.	2 ft. 6 in.	3 ft.		
6 in.	2 ft. 6 in.	3 ft. 3 in.	1.833—1 10	2.50—2 6
8 in.	3 ft. 0 in.	3 ft. 5 in.	2. —2 0	2.66—2 8
10 in.	3 ft. 0 in.	3 ft. 7 in.	2.08 —2 1	3.00—3 0
12 in.	3 ft. 0 in.	3 ft. 9 in.	2.33 —2 4	3.20—3 2½
16 in.	3 ft. 6 in.	4 ft. 1 in.	2.33 —2 4	3.33—3 4
18 in.	3 ft. 6 in.	4 ft. 3 in.	2.33 —2 4	3.53—3 6
20 in.	4 ft. 0 in.	4 ft. 5 in.	2.50 —2 6	3.80—3 9½
24 in.	5 ft. 0 in.	4 ft. 9 in.	3.00 —3 0	4.00—4 0
30 in.	5 ft. 6 in.	5 ft. 3 in.	3.60 —3 7¼	4.60—4 7½
36 in.	6 ft. 6 in.	5 ft. 9 in.	4.00 —4 0	5.00—5 0

5512 The WITNESS: Mr. Edgerton allows 900,126 cubic yards plus 10 per cent. for bell holes, or a total of 990,140.3 cubic yards at 67 cents a yard, against my measurements of 1,623,626.18 cubic yards at 95 cents a yard, which makes a difference between Mr. Edgerton's figures and mine, and which brings my figures $1,038,295.20 more than Mr. Edgerton's on the excavation of trenches.

Q. Your figures, you stated, are based on the fact?

A. On the trenches as we have dug them and made them for years.

Q. And you found it necessary to make them?
A. Yes, sir.
Q. Now, there is a crossing on avenues by a street every two hundred feet?
A. Every two hundred feet, yes, sir.
Q. And in view of these sub-surface structures that you find isn't it nearly always necessarily a case either of extreme width or of extreme depth, and often of both, in crossing those streets?
A. Yes, sir; in practically every instance.
Q. Have you also tabulated the figures showing the value, or cost of sheathing in the trench, which Mr. Edgerton did not include in his testimony?
A. Yes, sir.
Q. That deals with the larger sizes of pipes?
A. It is the value of sheathing left in the trench.
Q. And that amounts to how much?
A. $50,505.82.
Q. As left in the mileage of the company?
A. Left in the mileage of the company?
Q. Yes, that applies to the mileage of mains of the company?
A. No, it is just an additional expense in laying mains that Mr. Edgerton has not taken into account.
Q. Precisely. As applicable to the mains of the Consolidated Gas Company?
A. Yes, sir. The details follow:

5513 VALUE OF SHEATHING LEFT IN TRENCH.

Size of main.	Feet of board measure per lin. foot of main.	Price per 1,000 feet B. M.	Price per foot of pipe.	Number of feet.	Value.	
16"	1.750	35.00	.06125	98,901	$6,057.69	
18"	1.987	35.00	.06955	29,633	2,060.83	
20"	2.150	35.00	.07525	178,803	13,454.93	
24"	2.375	35.00	.08312	45,956	3,819.86	
30"	2.725	35.00	.09537	131,583	12,549.10	
36"	3.163	35.00	.11071	22,242	2,462.41	
					$40,404.82	$40,404.82
Plus cost of driving sheathing at $8.75 per 1,000 feet, Board Measure.....						$10,101.00
						$50,505.82

Q. Now, as an illustration on that, what about the thirty-six inch main between 111th and 131st Streets?
A. In this case we laid a thirty-six inch main in 1904 and were compelled to leave in the trench 38,766.75 feet of board measure of sheathing.
Q. Why were you compelled to leave it in the trench?

A. In some cases it is not wise to draw it on account of endangering the pipes of our own system or water pipes or something of the kind. In other cases, we are by the city forbidden to draw the sheathing. Then again, in that soil where you are down deep it is not wise to draw the sheathing because sometimes you have to dig up your main for some future purpose, it is well to have the sheathing in.

Q. Now, have you made a computation of the cost of sheathing which is not left in the trench?

A. Yes, sir.

Q. For the different sizes of pipe?

A. Yes, sir. It is as follows:

5514 Mr. Edgerton has made no allowance for the cost of sheathing, which on all pipe 16 in. diam. and larger, is necessary on 50 per cent. of the mileage and on sizes under 16 in., on 10 per cent. of the mileage.

Size.	10 per cent. of mileage.	50 per cent. of mileage.	Feet board measure per foot of main.	Total feet board measure.
6 in.	212,908		16.20	3,449,109.6
8 in.	52,804		16.87	390,803.5
10 in.	7,128		17.65	125,809.2
12 in.	32,153		18.60	598,045.8
16 in.		49,450	20.65	1,021,152.8
18 in.		14,816	21.28	315,295.1
20 in.		89,401	22.05	1,971,303.1
24 in.		22,978	23.50	539,983.0
30 in.		65,792	25.60	1,684,262.0
36 in.		11,121	28.10	312,500.0
				10,908,264.

10,908,264 feet at $20 per M. feet B. M. = 218,165.28
Labor, at $8.75 per M. feet B. M. = 95,847.28

$314,012.56

This calculation is based on

Lumber at..... $35.00 per M. feet.
Less salvage..... ..... 15.00 " " "

Net cost..... $20.00 " " "

Labor—Average rate $2.05 per day.

(The loss by cutting and wastage, the cost of pulling sheathing and carting to yard are allowed for in the Salvage Credit.)

5515 Q. It shows what?

A. That with our system to-day in New York City I have estimated the cost of sheathing at $314,012.56, deducting for any possible salvage we might obtain.

Q. Is that also from the company's experience and your own knowledge in that regard?

A. Yes, sir.

Q. Did you find that Mr. Edgerton made any allowance for blocking and wedges?

A. Not one cent.

Q. Have you made a computation of the cost of blocking and wedging?

A. Yes, sir.

Q. As to the Consolidated mains?

A. Yes, sir. It amounts to $40,784.17. The computation is as follows:

VALUE OF BLOCKING AND WEDGES.

Size.	Size block.	Size wedge.	Cost per lineal foot. Blocking.	Wedges.	Total.	Number of feet.	Amount.
3		14 x 2½ x 3 in.		.0053	.0053	222,741	1,180.53
4		14 x 2½ x 3 in.		.0053	.0053	557,469	2,954.59
6		14 x 2½ x 3 in.		.0053	.0053	2,129,088	11,284.17
8		14 x 2½ x 3 in.		.0053	.0053	528,040	2,798.61
10		14 x 2½ x 3 in.		.0053	.0053	71,286	377.82
12	1 ft. 4 in. x 3 in. x 6 in.	14 x 2½ x 3 in.	.0125	.0053	.0178	321,536	5,723.34
16	1 ft. 4 in. x 3 in. x 6 in.	14 x 2½ x 3 in.	.0125	.0053	.0178	98,901	1,760.44
18	1 ft. 4 in. x 4 in. x 8 in.	14 x 2½ x 3 in.	.0222	.0053	.0276	29,633	817.87
20	1 ft. 6 in. x 4 in. x 8 in.	14 x 2½ x 3 in.	.0250	.0053	.0303	178,803	5,417.73
24	1 ft. 6 in. x 4 in. x 8 in.	14 x 3 x 4 in.	.0250	.0100	.0350	45,956	1,608.46
30	2 ft. 0 in. x 4 in. x 8 in.	14 x 3 x 4 in.	.0334	.0100	.0434	131,583	5,710.70
36	2 ft. 6 in. x 4 in. x 8 in.	14 x 3 x 4 in.	.0417	.0100	.0517	22,242	1,149.91
							$40,784.17

Calculations based on
Spruce Blocking 37.50 per M. Board Measure.
Oak Wedges 14 x 2½ x 3 1.6c each.
Oak Wedges 14 x 3 x 4 3.0c each.
One block and two wedges to six feet of pipe.

CONSOLIDATED GAS CO. OF NEW YORK.

PAGE BOUND VERTICAL IN BOOK

5517 Q. And have you made a computation as to the cost of bridging for which Mr. Edgerton did not make allowance?

A. That is only a rough estimate. It is what I consider would be a minimum, absolute minimum cost of the bridging of streets and hydrants necessary for the laying of our main system.

Q. That is how much?

A, $30,000.

Q. Now, have you taken Mr. Edgerton's estimate of the total cost of reproduction or replacing the mains of the Consolidated Gas Company as given on page 4,065, to wit: $8,919,792.55, and made additions to his calculation of the items in which he has erred or which he has left out?

A. Yes, sir.

Q. Is that it?

A. Yes, sir. It is as follows:

5518

Mr. Edgerton's estimate of the total cost of reproducing or replacing the mains of the Consol. Gas Co. is given as (p. 4066).....		$8,919,792.55
The following items, on which he has made no calculation, should be included:		
Difference in pipe weights as estimated and as actually used.....	$393,491.13	
Plus 10 per cent. for special wastage, etc., as calculated by Mr. Edgerton...	39,349.11	
		$432,840.24
Difference in asphalt pavements on both price and width	$1,824,754.66	
Difference in earth excavation, on price, width and depth.	1,033,295.20	
Value of sheathing left in trench, and labor at $8.75 per M ft. B. M....	50,505.82	
Value of blocking and wedges.....	40,784.17	
Difference in lead actually used and as calculated, both price and amount..	147,220.90	
Cost of sheathing trenches, 10% of mileage under 12", 50% over 12".....	314,012.56	
Difference in cost of laying and caulking, actual as against estimated.....	225,522.91	

Cost of bridging.....	$30,000.00		
Cost of carting and dumping rock.....	74,252.00		
		$3.740,348.22	
		$4,173,188.46	
To which is added 10% for engineering supervision, and expense, cost of city inspection, interest on and wear and tear of tools and plant, possibilities of obstruction on streets which would delay the work, serious obstruction met with under ground, including sub-surface structures, clerical expense, suits for damages and other undistributed expenses.....		$417,318.85	
		$4,590,507.31	$4,590,507.31
			$13,510,299.86

5519 Q. And making these corrections, the cost of the reproduction of the mains instead of $8,919,792.55 would be how much?

A. $13,510,299.86.

Q. And that is nearly a million dollars more than your estimated cost of reproduction?

A. $900,000 more.

Q. That includes, however, the cost of carting and dumping the carting at $2.14 instead of your cost of carting and dumping at $1, and some other errors, which would reduce the total?

A. Yes, sir, and possible underestimates on my part.

Q. You mean in making up your total of $12,656,000 for reproduction?

A. Yes, sir, and in a good many cases I have been too conservative.

Q. Have you been dealing with pressure in mains and seen the effect of the pressure and of gas escaping from mains under pressure during the last twenty-five or thirty years?

A. I have, yes, sir.

Q. What have you to say as to the feas-b-lity of distributing or putting gas through the City of New York under a pressure of twenty or thirty pounds as suggested by Mr. Edgerton?

A. I should be very sorry to have charge of the mains when we had such pressure as that, as he is dealing with.

Q. Have there been accidents to the mains of the company which have allowed the escape of gas within recent times?

A. A great many accidents to the mains with the present pressure we are carrying.

Q. Will you give me some illustrations?

A. The most recent one I recall was on October 13th at Forty-third Street and First Avenue. In that case the Consolidated Telegraph

and Electric Subway Company were laying a subway along one side of our twenty-inch gas mains. They fired an unusually heavy blast, it broke the mains and the gas immediately caught fire and blazed to the very top of the tenement houses alongside, and except for
5520 the promptness of our men—the watchman we had there was seriously burned and had to be taken away in an ambulance—and we had some men working around the corner a block away, and the superintende-t of the district happened to be crossing First Avenue and saw the blaze from a mile away, and drove right down. So by a combination of circumstances, being ready, we were able to put the fire out nine minutes after it happened.

By Mr. PAGE:

Q. Do you claim that that was due to the pressure?

A. That was due to the gas in the main being ignited, and the pressure on the gas in that main was two inches or 1/14 part of a pound. Now, the only reason that the block was not put on fire was on account of the prompt work of our men who happened to be there. By the time we had the stoppers in and the gas turned off, the windows of the tenement house alongside and a saloon—the glass was all cracked and ready to break in. In another two minutes the windows would have gone, and the whole place also, and you wouldn't have been able to get near the place.

By Mr. MATHEWSON:

Q. What would be the result of an accident of that kind if the gas were coming through under a pressure of twenty or thirty pounds instead of 1/14 of a pound?

Mr. BURR: Objected to as being hypothetical. He has not shown he has any experience in the effect of gas explosions or the effect of fire arising, as he has testified in this particular instance in the gas mains. I do not think that is competent testimony.

5521 The MASTER: He testified he had some experience with escaping gas. I think it is permissible to ask him, as an expert, what in his opinion would be the effect of gas escaping under a greater pressure than such as he has seen.

Exception.

A. I know in this case here, with a pressure of two inches, the matter would have been very serious indeed if our men had not been on the spot and put it out. If the pressure was twenty pounds, or 560 inches, I don't know what would have happened. There was a hole in the side of the pipe four feet long by eighteen inches wide.

Q. Would that, in your judgment, have been a very serious situation, or wouldn't it?

A. I don't believe the firemen themselves could have got within 300 feet of the place, and nothing in the world could have possibly saved that block.

Q. Well, you saw the results of the explosion which took place in front of this building on Wall Street a short while ago, or of the settling of some pipes, or something like that?

A. Yes, sir.

Q. Would that same effect possibly have broken a gas pipe in settling?

A. It was just a chance that the gas pipe was not broken. If the gas pipe had been nearer to the break it would have broken. In this case we happened to lie closer to the curb, and the water main broke and our gas pipe did not.

Q. If the gas had been going through the main in Wall Street at the pressure of twenty or thirty pounds and it did break, would you apprehend serious consequences from that?

The MASTER: That is getting a little remote.

Mr. M-THEWSON: Very good.

5522 Q. Well, I will ask whether, in your judgment, from your knowledge of pressure and your dealings with it and observation of its effects, it would be possible, by any such system as Mr. Edgerton has outlined, to maintain the pressure even under his system at every point and at all hours, within a limit of two and one-half and one inch as he testified?

A. I am morally certain it would not be possible.

Q. Assuming, however, that mains were to be put in as suggested by him, and valves put in wherever possible in order to equalize the pressure, have you computed what would be the cost to-day of such a system?

A. I have.

Q. How much, in your judgment, would it cost to put that in?

A. Do you mean the exact figures?

Q. Well, about.

A. Over four million dollars.

Mr. KIRBY: Are you going to leave it to me to prove all the details of these four million dollars?

Mr. MATHEWSON: No; not if you want the details.

Q. Is this the detail to which counsel has referred as making up your total?

A. Yes, sir.

Q. That involves valves where?

A. It involves in the first place section valves on all the main lines; it involves, of course, additional valves to shut off or confine the gas to certain areas. Probably the only pipe that could be used would be flanged steel pipe, we would have to use expansion joints every five hundred feet, or according to the conditions. We would not be able to take such runs of pipe; we would have to go down and around and under foundations so there would be an expansion joint required every five hundred feet. The detail is as follows:

5523 *IN RE* TO MR. E.'S SUGGESTED HIGH PRESSURE MAINS.

74,000 ft. of 24-in. flanged steel pipe at $10.00 per ft....	$740,000
Labor, cartage, laying, etc., on above at $15.00 per ft...	1,110,000
148 expansion joints at $800.00 each.....	118,400
74 section valves and vaults for same at $200.00 each...	14,800
36,550 ft. of 20.-in. flanged steel pipe at $7.00 per ft....	255,850
Labor, cartage, laying, etc., at $11.00.....	402,050
73 expansion joints at $500.00 each.....	36,500
36 section valves and vaults for same at $150.00.....	5,400
14,660 ft. of 16-in. flanged steel pipe at $5.50 per ft.....	80,630
Labor, cartage, laying, etc., at $7.00 per ft.....	102,620
30 expansion joints at $300.00 each.....	9,000
15 section valves and vaults for same at $100.00 each...	1,500
For additional trunk line leading from high pressure main to the various areas, and then "letting go" through governors to each district, allowing for 25 areas and a 16-in. steel main, 2,500 ft. long to supply each area:	
62,500 ft. of 16-in. flanged steel pipe at $5.50 per ft.....	343,750
Labor, cartage, laying, etc., at $4.50 per ft.....	281,250
125 expansion joints at $300.00 each.....	37,500
Connections, valves (other than section valves), governors and vaults for these valves and governors	50,000
5524 70,000 yards of new paving at $3.25 per yard..	227,500
Making a total of.....	$3,816,750
Add for contingencies of all kinds, 10 per cent.....	381,675
Grand total.....	$4,198,425

By Mr. BURR:

Q. What was that computation made by you?

A. By me; yes, sir.

By Mr. MATHEWSON:

Q. Mr. Edgerton testified he would use cast iron pipe. Would that in your judgment be the pipe to use if you were to try that experiment?

A. I would not use cast iron.

Q. Why not?

A. Because the same thing might happen as you had at First Avenue and Forty-third street. If you laid a pipe of that kind you would have to use every precaution possible, and using cast iron pipe would not be taking any precaution.

Q. You are not familiar are you, with any city where the gas is delivered to consumers in the city by running the mains around through the city under twenty or thirty-pound pressure?

A. No, sir; I am not. Of course, I know of instances of gas being

delivered to small country towns through small high-pressure mains and then reduced inside the towns.

Q. Would the danger in such a town as that, even if introduced into the town, be as great as in New York City where we have this congestion of traffic, buildings, etc.?

A. Certainly not. In New York there are houses every foot of the way. In the country work you might have a house every mile or sometimes every two miles.

5525 Q. Let me ask you generally, aside from the possibility of maintaining the pressure between two and one-half and one inches at every point and at every time under Mr. Edgerton's system, would you consider that a safe or wise system to install under the pressures indicated in the City of New York with the conditions here existing—under pressures of twenty or thirty pounds?

A. No, sir; I would not consider it safe or wise.

Mr. MATHEWSON: I think that is all.

Cross-examination by Mr. KIRBY:

Q. I take it that your statement headed "In regard to Mr. E's suggested high-pressure mains" that the cost as computed by you is your idea as to how those mains should be put down, where put down and how connected?

A. No, sir; I took the route suggested by Mr. Edgerton in his testimony. He suggested a main on the east side of the city and the west side of the city, and I took the only available avenues on the east and west sides.

Q. That is, you used no figures given by Mr. Edgerton except at his suggestion that there would be a main on each side of the town?

A. I used the size suggested by Mr. Edgerton, 24, 20 and 16. Twenty-four to start with, reducing to 20 and 16, and the location suggested by him.

Q. But the joints and valves and excavation, and the repaving and all matters of that kind are figures in which you have used your own——

A. I informed myself on the actual cost of the pipe, actual cost of expansion joints, valves.

Q. And this statement includes entirely your own figures on those matters?

A. Yes, sir.

Q. I notice here you se- out for contingencies of all kinds 10 per cent. I find no mention in the statement of any amount for sheathing or blocking and wedges, or sheathing left in the

5526 trench or matters of that kind?

A. No, sir.

Q. Is that included in the 10 per cent.?

A. Yes.

Q. You have spoken of a certain accident that happened to one of the mains in which a pressure was maintained of about two inches. That accident was from an external cause, entirely, was it not?

A. Yes, sir.

Q. Suppose instead of being about 1-14 part of a pound pressure there, there had been, say 14-14, or a full pound pressure, what do you consider the consequences would have been then?

A. They would have been very serious indeed.

Q. The windows would have probably been melted, would they not?

A. They would.

Q. The tenements would probably have been on fire, would they not?

A. Yes.

Q. And there would have been grave danger?

A. Yes, sir.

Q. If the happy circumstances you refer to had not existed there would have been far more danger, would there not? If your workmen had not been on the job and your superintendent in sight of the conflagration?

A. It would have taken longer to put the fire out.

Q. Are there any mains of the Consolidated Gas Company in the city where as high a pressure as one pound is maintained?

A. There is one main in the city where that pressure has been maintained.

Q. And that is maintained every day, is it not?

A. No, sir.

Q. How often?

A. For two or three hours a night, in winter time, and then it is only for a very short time.

Q. What do you mean by the winter time?

A. Well, the months, from say, the middle of November—the first of November till the 15th of February about.

5527 Q. Have you ever made any experiments at all directed toward finding out how gases under as high a pressure as twenty pounds would act if an effort were made to ignite them?

A. I have not.

Q. Mr. Edgerton, in his testimony relative to the installation of a high pressure system, made reference to governors?

A. Yes, sir.

Q. Did you allow for the installation of governors in your estimate of the cost of the system which I have referred to?

A. I think I did.

Q. Are you aware that a governor is constructed which, when the pressure becomes lower than a certain point, that the gas is automatically shut off?

A. Not automatically shut off. You mean the pressure is automatically reduced.

Q. Automatically shut off?

A. Reduced.

Q. Reduced, and, in some instances, automatically shut off if the governor is so adjusted?

A. You mean the gas is put out altogether.

Q. I do.

A. It would be a pretty poor governor, I should think. I wouldn't want to use such a governor.

Q. A governor could be, and many of them are so adjusted, that on the sudden releasing of pressure the gas would be automatically shut off or brought down to a merely nominal pressure, is that not the fact?

A. I really do not quite understand your question. Do you mean that if you are trying to govern a certain district, or a certain town, and reduce the pressure from high pressure to low pressure, is that what you are talking about? That is, bring the gas up to the town under high pressure and reduce it to low pressure after it has reached town?

Q. Well, that is one kind of governor. We will assume that we have installed this high pressure system and that we have at various points on the main a governor which is so adjusted that if
5528 the pressure on one side of that governor was suddenly reduced that the governor would automatically close so as to prevent any great flow of gas from that side of the governor where the pressure was reduced. Now, I ask if you are not aware that such governors are made and are in use?

A. Wouldn't it necessitate the use of two governors acting simultaneously, or one would only act on the end the gas was coming from?

Q. It might.

A. Well, I am not familiar with a governor of that kind at the present time.

Q. But such would not appear to be either impossible or unusual?

A. You mean to say if your main was working under a pressure of twenty pounds and that main was broken and the gas escaping that the governor would shut itself?

Q. That is what I mean.

A. I don't know of any such governor, no, sir.

Q. It does not appear an impossible proposition to you, does it?

A. It is an improbable proposition to me. I do not say it is impossible.

Q. In other words, you could not employ an automatic shut-off valve to a gas main?

A. A governor passing gas at twenty pounds pressure would have to be opened up to let the gas go through, and stay open.

Q. Well, I won't argue the point with you, Mr. Simpson, I think it is very plain.

A. Well, I would be glad to answer the question if I could understand what you are trying to get at. I certainly am not trying to evade the answer.

Q. You have presented here a statement showing the estimated cost of bridging. Did you include such cost in your first estimate of the value of the mains of the Consolidated Gas Company?

A. I did, sir.

Q. Under what items did you include it?

A. Divided it up among the items of labor and material.

5529 Q. Didn't state it specifically, did you?

A. No, sir.

Q. Did you include that of blocking and wedging?
A. I did, sir.
Q. Where did you include that?
A. The same way.
Q. Did you include that as sheathing?
A. I did.
Q. In the trench?
A. Yes, sir.
Q. And left in the trench?
A. Yes, sir.
Q. Where was that included?
A. The same way, labor and material.
Q. Taking for example your statement in reference to the blocking and wedges, do I take it from this that you consider that every foot and every size of pipe has to have a block placed thereunder and wedges inserted?
A. Not every size. Every size of pipe has to be blocked in some way. In the smaller sizes we have no blocking only wedges. In the larger sizes we use wedges on top of the blocking.
Q. All pipes laid in the city have blocks laid thereunder?
A. Yes, sir.
Q. None of them are laid directly on the soil?
A. I have never had pipes laid that way; wouldn't allow them to be laid that way.
Q. And that has been the invariable custom for the twenty years you have been connected with the company?
A. It is the invariable custom in the gas business in any city of any size for either gas pipes or water pipes.
Q. You have always done it here?
A. Yes, sir.
Q. Do you know whether or not the pipes which were laid prior to the time you became connected with the company were laid in that way?
A. I have not the slightest doubt they were.
Q. Do you know?
A. I do know.
Q. How do you know?
A. Because I have seen lots of them taken up and seen the blocking and wedges taken up.
5530 Q. And every bit of pipe laid in the City of New York has blocks laid under?
A. Not every foot, I allow for blocking every six feet, two blocks and two wedges to each length of pipe.
Q. Just explain that a little more fully. Two blocks and two wedges?
A. No, sir. One block and two wedges to every six feet of pipe.
Q. At what point on the pipe does that block come?
A. The first block would come back of the hub and the second block about the middle of the pipe, the middle of the length.
Q. So that in no instance would the pipe lay next to the ground?
A. Oh, yes sir, the pipe lays next to the ground, of course, the blocks are countersunk in the ground.

Q. Are you familiar with the pipes of the East River Gas Company?

A. The East River Gas Company? Yes, sir.

Q. Were they laid in this wise?

A. They were.

Q. Are you sure of that?

A. Certainly.

Q. Did you lay them?

A. I saw them laid.

Q. Are you familiar with the weights of pipe of that company?

A. The weights of pipe of the East River Company?

Q. Yes.

A. I am. I will say familiar, I know of the weights of them.

Q. Are they the weights which you have used in your estimate?

A. They are not there.

Q. That is part of the Consolidated Gas Company's system, is it not?

A. No, sir.

Q. In no part?

A. No, sir.

Q. Using none of the mains of the East River Gas Light Company?

A. No, sir; not one inch.

Q. A part of it?

A. No, sir.

Q. Those pipes are laid in the Borough of Manhattan, are they not?

A. Yes, sir. I would like to correct that statement, Mr. Kirby, if I may. When I said they were using lighter pipe they
5530*a* used lighter pipe till the time I was in charge of their mains and from that date on they have used the same weight of pipe that we have used.

Q. It is a fact, is it not, that it used lighter pipe?

A. Lighter pipe; yes, sir.

Q. Is it not a fact that the weight of the three-inch pipe that they use is the same as that given by Mr. Edgerton, eleven pounds?

A. They haven't used any three-inch pipe.

Q. Is it not a fact that the weight of four-inch pipe they used was the same as that given by Mr. Edgerton?

A. No, sir.

Q. Is it not a fact that the weight of their four-inch pipe is eighteen pounds?

A. No, sir; their four-inch pipe runs nearly to nineteen, the same as ours.

Q. Then, if we have a report of the East River Gas Company appearing in the *American Gas Light Journal* for November, 1898, that it was eighteen pounds for four-inch pipe, the same would be correct, would it?

A. The report might be correct as far as the weight of pipe called for. They might have asked for eighteen and got eighteen and three-quarters, or eighteen and seven-eighths.

Q. A statement by the company that their four-inch pipe was of a weight of eighteen pounds and paid for such, would be correct?
A. I think so.
Q. Are you aware that their six-inch pipe is the same weight as that given by Mr. Edgerton?
A. It is the same weight given of the new pipe by Mr. Edgerton, thirty pounds; not the old, they never used it.
Q. And that their eight-inch pipe——
A. Eight inch runs forty-two pounds to the foot against our forty-four, or used to run, but does not now. I say they are using the same weights we used.
Q. Is it not a fact that their twelve-inch pipe has a weight of seventy-two pounds to the foot?
A. Against our seventy-three, yes.
5530*b* Q. And Mr. Edgertons' seventy-two for his new pipe?
A. Yes; one pound difference between that and ours.
Q. And that twelve-inch pipe weighs 148 pounds as against Mr. Edgerton's 150 for his new pipe?
A. Yes, sir.
Q. And that their thirty-six inch pipe weighs 360 as against Mr. Edgerton's 360 for both old and new?
A. Yes, I know that the thirty-six inch pipe they laid was entirely too light, and I commented upon it at the time and thought they would have serious trouble with it before they got through.
Q. Have they?
A. They have had quite a little trouble with the joints.
Q. What effect on the joints has the lightness of pipe?
A. None whatever.
Q. You are familiar with the firm of R. D. Wood & Company, of Philadelphia, are you not?
A. I know there is such a concern.
Q. Never bought pipe from them?
A. No, sir.
Q. Do you know whether or not they have furnished pipes to be laid in the City of New York?
A. I do know it.
Q. Are you familiar with the weights of such pipe?
A. They make pipes to all kinds of weight.
Q. Are you familiar with the weight of their pipe which has been laid in the City of New York?
A. I am not.
Q. You know that they have furnished pipe that has been laid in the City of New York down to three inches in the weight of eleven pounds?
A. No.
Q. And that they have furnished four-inch pipe in the weight of fifteen pounds?
A. No.
Q. Or furnished six inch pipe which would weigh twenty-five pounds?
A. No, sir.

Q. Or eight inch pipe which would weigh thirty-eight pounds?
A. No, sir.
Q. Or ten-inch pipe which would weigh fifty pounds?
A. No, sir.
5530c Q. Or twelve inch pipe with a weight of fifty-eight pounds?
A. No, sir.
Q. Or sixteen inch pipe with a weight of 100 pounds?
A. No, sir.
Q. Or twenty inch pipe with a weight of 140 pounds?
A. No, sir.
Q. Or twenty-four inch pipe with a weight of 125 pounds?
A. No, sir.
Q. Or thirty inch pipe with a weight of 325 pounds?
A. No, sir.
Q. Or thirty-six inch pipe with a weight of four hundred pounds?
A. No, sir.
Q. All of the pipe of the Consolidated Gas Company has not been aid since you became connected with the company, has it?
A. No, sir. The greater part of it has.
Q. Where did you get your knowledge of the weight of such pipes s were in the ground when you came to the company?
A. From pipes taken up here and there belonging to all the con- ituent parts of the company.
Q. You have no direct knowledge of those weights, have you?
A. I have got direct knowledge of it for twenty-five years back.
Q. Many of the pipes were laid prior to that time, were they ot?
A. Some of them were, yes, sir.
Q. You have no direct knowledge of those weights, have you?
A. Except that I am familiar with the weights the other com- nies used and always have been.

Mr. MATHEWSON: He was connected with one of the constituent mpanies, you know, long before the Consolidated was formed.
The WITNESS: The Municipal and the Knickerbocker.

530d Q. How long have you been familiar with the laying of pipes in the Borough of Manhattan, City of New York?
A. Twenty-five years.
Q. We have here your statement as to the cost of sheathing. It ates that such sheathing is necessary on 50 per cent. of the mileage, all pipes sixteen inches in diameter, and on sizes under sixteen ches, on 10 per cent. of the mileage.
A. Yes, sir.
Q. Has not the sheathing anything to do with the depth at which e pipe is laid?
A. Yes, sir—not solely that, but it has partly to do with that.
Q. But your 50 per cent. is based upon the depth which you state e Consolidated Gas Company pipes are laid, as well as the diameter it not?
A. The 50 per cent. is based on my knowledge of when sheathing

is necessary. It is not so often necessary with small sizes of pipe as it is with the larger sizes.

Q. And is not that true largely because of the fact that the largest sized pipes are laid deeper beneath the surface of the street than the smaller sizes?

A. The bottom of the trench, of course, is deeper than the smaller pipe.

Q. And is not that the reason?

A. One of the reasons; yes, sir.

Q. So if the trench were not as deep as that you have used, the percentage would be less?

A. It would depend entirely on the depth of the trench and the character of bank you are working in and the structures you are contending with alongside of your trench.

Q. Of course, you use no sheathing where there is a rock excavation, do you?

A. No, sir.

Adjourned at 5 p. m. to January 15th, 1907, at 11 a. m.

Last Complainant's Exhibit 294.
State's 000.
City's 137.

5531 Circuit Court of the United States, Southern District of New York.

CONSOLIDATED GAS COMPANY OF NEW YORK, Complainant,
vs.
JULIUS M. MAYER, as Attorney General of the State of New York; WILLIAM TRAVERS JEROME, as District Attorney of New York County; FREDERICK E. GUNNISON, JOHN C. DAVIES, and LUCIAN L. SHEDDEN, Constituting the New York State Commission of Gas and Electricity, and THE CITY OF NEW YORK, Defendants.

Before Arthur H. Masten, Special Master.

NEW YORK, *January* 15, 1907—11:00 a. m.

Met pursuant to adjournment.

Present: The Master, Mr. Mathewson, Mr. Burr, Mr. Kirby.

5532 COLIN C. SIMPSON resumed the stand, *as* further testified.

Cross-examination by Mr. KIRBY (continued):

Q. Let us take up the method of laying mains such as the Consolidated uses in the city. You first remove the pavement, then dig your trench in the usual way, as to the general character of the earth or other material which you excavate. How deep do you go before you put in the sheathing?

A. You haven't started at the beginning. What size of main do you mean?

Q. Twelve-inch main, we will assume.

A. Twelve inch main on an avenue?

Q. On an avenue, yes.

A. I would apply for the permit first for doing that work, and then dig a big test hole along the line to see whether the main could be laid in that place. If it could not be laid there I would have to do one of two things—get the permit changed, if it could be changed, or else arrange for altering the structures which come in our way, or having the structures altered which come in our way.

Q. Now, we will assume that it is possible to put a main down in the avenue which we selected. What is the first physical act which is done?

A. The first physical act is, of course, to remove the pavement, whatever it is. Then excavate. As the excavating is going on, if it is necessary to sheath the sheathing is put in as the excavation progresses.

Q. When is it necessary to sheath?

A. It is necessary to sheath in almost every case in a deep trench.

Q. What do you mean by a deep trench?

A. Any trench over three feet six, to four feet deep.

Q. Is that so in all characters of soil?

5533 A. In New York City it is not safe to go beyond that depth without sheathing—in hardly a single instance.

Q. That does not hold true in rock, does it?

A. No.

Q. Now, we have our trench dug and sheathing put in in such cases as you have suggested——

A. I did not get through. With a shallow trench, if you have a main——

Q. What do you mean by that?

A. A trench two feet nine covered from the top of the pipe. A trench three feet deep even. If there is any sub-surface structure running parallel and close to our trench it is then necessary to sheath too, to take care of that structure. If we are running alongside or near a sewer, as is often the case when there are two sewers one on each side of the street, it is also necessary to sheath.

Q. Yes.

A. If any filled in soil is around, any bad or loose soil, it is always necessary to sheath with any kind of trench. Where the ground is filled in with broken rock it is also necessary to sheath.

Q. Now, we have our trench dug and what happens?

A. When the trench is dug?

Q. Do you make any efforts to level it up in any way?

A. Oh, yes; the bottom is leveled. If it is a main twelve-inch and above we put the pipe in, get the blocking in first and start laying the pipe. The pipes are put in, put together, yarn the joints and caulked.

Q. You spoke of putting the blocking in?

A. Yes, sir.

Q. Now, on what size pipes do you use blocking?

A. Anything above twelve inches.

Q. And where do you use it?

A. We use it back of the hub and midway——

Q. No, why? What is the object of blocking?

5534 A. It is not good practice in the gas business to put pipes in without blocking.

The MASTER: That is hardly an answer, Mr. Simpson.

The WITNESS: Well, it is considered necessary.

Q. Necessary for what?

A. Necessary for a support for the pipe.

Q. You have leveled up the bottom of your trench, have you not?

A. You have.

Q. Your pipe rests therein?

A. Yes.

Q. What object has the blocking then?

A. You can never level your trench as level as the pipe itself would be.

Q. Then it is for the purpose of leveling the pipe?

A. No; it is for the purpose of giving a firm support to the pipe.

Q. Does or does not your pipe rest on the bottom of the trench?

A. Can I make a little sketch explaining to you what I am getting at? That (indicating on a piece of paper) may be the bottom of the trench, but it may not be a straight line like that (indicating); it may be uneven. Now, there might be a little hump there and the pipe would rest on that, and would have no rest here and no rest there (indicating); that it, no rest at the ends; whereas, if there is a block there and a block there (indicating) and that is the hub there (indicating) the length of pipe rests on that, and the next block comes under the next length of pipe.

Q. So if your trench was dug so that the bottom would be level there would be no need of blocking?

A. If the trench were dug in good clean soil, and could be made absolutely level so the pipe would rest its entire length on that, blocking would not be necessary.

5535 Q. And the longer the length of pipe which rests upon a level surface the better support there is; is that not so?

A. Yes.

Q. And are you not aware that in practice, which is recommended by certain authorities, that the laying of pipe upon a trench without blocking is advised as against laying it upon blocking?

A. I have not heard of it.

Q. It would not surprise you to learn that many miles of pipe have been laid without blocking?

A. Not a bit. I would lay it in the country myself.

Q. Why would you if a trench was level?

A. If I could have ideal soil in New York I would not bother about blocking.

Q. What is the peculiar fact about the soil here which prevents you from getting the bottom of a trench level?

A. I do not suppose there is a cubic foot of ground in New York that has not been only dug over once but repeatedly dug over and over again, and in every street almost the character of the soil changes. You might have sand in one street, you have clay in another, you have got rock in another, you have got filled-in rock in another, you have got garbage filled in another.

Q. How does that in any way change the ability to level up the trench?

A. It forces us to make a rule that all pipe shall be blocked and not leave whether the pipe shall be blocked or not to the foreman who is doing the job.

Q. What size pipe do you lay by hand, and what size do you commence to use a derrick for?

A. Commence to use a derrick at 16 inch.

Q. Why do you use a derrick for that size?

A. Because it is easier to handle the pipe.

Q. And the number of men which would be necessary to lay a pipe of that size would be such as make it more expensive than if you used a derrick?

5536 A. It is cheaper to go to the expense of using the derrick and the derrick gang than it would be to try to put the pipe in without the derrick.

Q. What is the difference between the price of labor such as would be used in laying the pipe by hand and such as would be employed in using the derrick?

A. It would depend entirely upon the composition of the gang, a derrick gang. You take men at $2.00 or $2.25. The men in sheathing might get $1.25; some of them $2.00.

Q. Do you pay any of your men as low as $1.50?

A. No, sir. I stated $1.75. $1.90 is the least we pay.

Q. What did you mean when you spoke of $1.75?

A. Because some time ago we used to pay $1.75.

Q. As late as last July?

A. Yes, sir.

Q. When did you change to $1.90?

A. Two months ago, or about a month ago.

Q. In the statement which you made yesterday, in reference to the allowance for the cost of sheathing you state that in all pipes sixteen-inch diameter and larger, fifty per cent. of the mileage must be sheathed?

A. Yes, sir.

Q. And on sizes under sixteen inches, on ten per cent. of the mileage?

A. Yes, sir.

Q. Would you use under ordinary conditions sheathing on a trench for a pipe of six inches in diameter?

A. Under ordinary conditions?

Q. Yes.

A. It would depend upon what the conditions were.

Q. Straight laying?

A. It would depend entirely upon what the conditions were alongside of the trench. I might have to sheath if I went down only two feet with a six-inch pipe.

Q. But ordinarily you would not?

A. If there was nothing nearby I would not, or if the soil was perfectly good and safe.

5537 Q. In reference to the sheathing left in the trench, if you did have to sheath, for a shallow trench such as we have spoken of?

A. Yes, sir.
Q. Would you leave the sheath in that trench?
A. In some cases I would have to.
Q. In many cases?
A. Quite a few, yes.
Q. In as many cases as though the trench were a deep one?
A. No, probably not.
Q. As a matter of fact, most of the sheathing is left in deep trenches?
A. In deep trenches.
Q. Where it may be useful if an excavation is made at another time for repair or other purposes?
A. What do you mean by shallow and deep trenches? What do you refer to?
Q. Such as I made reference to, a trench of four and a half feet, or something of that kind.
A. I have testified on trenches two feet nine covered, and four feet to four feet six, and trenches where we go down seventeen or nineteen feet.
Q. Well, we will use a deep trench in the way you have used it. The deeper the trench, the more apt you would be to leave the sheathing in, would you not?
A. Yes, sir.
Q. You have presented a statement showing a comparison of the cost of laying and caulking pipes as given by Mr. Edgerton and as given by you?
A. Yes, sir.
Q. Your testimony being under the heading "of Consolidated Gas Company price?"
A. Yes, sir.
Q. In your testimony it also appears as to what your cost of laying is, exclusive of caulking?
A. I don't know that I gave any testimony exclusive of caulking.
Q. On page 312 of the record you testified and presented a table with reference to the cost of laying pipe. Will you explain what those figures include?
5538 A. Why, this one dollar and fourteen cents represents the entire value of labor and material for laying one and one-half inch pipe on a new pavement. That twenty-nine cents represents the entire cost for labor and material in laying one and one-half inch pipe under old pavement, and so on, all the way down. This column here is the entire cost of pipe, labor and material. That column (indicating) is for the old pavement, and that is for the new pavement (indicating another column).
Q. Including caulking?
A. Yes; except that ten per cent.

By Mr. MATHEWSON:

Q. Does that refer——
A. That refers to my big sheet.
Q. Has that the addition for the additional values of pipe and so forth, which you added at the end?

A. No, sir; that does not include the ten per cent. you know.

By Mr. KIRBY:

Q. What do you mean by your ten per cent.?
A. The ten per cent. for engineers and the cost of pipe as of December, 1905.
Q. What is the cost of pipe as of there in this statement on page 312 of the record?
A. October 31, 1905.

Mr. MATHEWSON: If you have his whole sheet there you can easily see it is the trench. I do not think you were here when it was put in. You will see he made these additions to the additional value of pipe and other things, following the schedule, and he subsequently testified that that did not, as it obviously did not, include all the expense.

5539 Mr. KIRBY: I understand the ten per cent. is not in there.
The WITNESS: And the cost of laying is not in there.

By Mr. MATHEWSON:

Q. Whatever was or was not in there you explained in your testimony?
A. Yes, sir.

By Mr. KIRBY:

Q. If, Mr. Simpson, you ascertained that the price of labor in some other city was the same as that which you have stated you would pay those engaged upon laying the pipe, would you expect that the cost of laying the pipe in that other city would be as great as that which you use here?
A. No, sir.
Q. You would not?
A. No, sir. I know it would not.
Q. Some more peculiar New York conditions?
A. Yes, sir. The proof of that is that I can lay mains cheaper in the Bronx than I can in Manhattan—also in Long Island City, and have been and am continually doing that.
Q. What is your cost of laying mains in the Bronx?
A. It will run probably—I cannot give you the exact figure offhand—but it will run anywhere from ten to twenty per cent. below in New York.

By Mr. MATHEWSON:

Q. Below Manhattan?
A. Below Manhattan.

By Mr. KIRBY:

Q. And you pay your labor as high there as in Manhattan?
A. Yes, sir.
Q. That is straight pipe laying?
A. Yes, sir.

5540 Q. You have made reference to the price of laying water-pipe. Is it not a fact that it generally costs more to lay water pipes than it does gas mains of the same diameter, the actual laying of the pipe?

A. Not one cent more.

Q. Is it not heavier?

A. Yes, sir.

Q. Does it not cost more to caulk it?

A. Not a bit more.

Q. Does it not have to be caulked for heavier pressures?

A. No, sir. It is not caulked for any more pressure than we caulk ours. In fact our pipe is more thoroughly caulked than a water pipe.

Q. Then that would infer negligence in caulking water pipe?

A. I am not criticising contractors or anything of that sort.

Q. Is it necessary to caulk gas mains better than water pipes?

A. It is necessary to put in the best work that can be put in.

Q. Is it not as necessary to put in the best work that can be put in on water mains?

Mr. MATHEWSON: That is a conclusion of this witness.

A. I should say yes, it is. It ought to be done.

Q. Water mains carry more pressure than your gas mains, do they not?

A. A great deal more pressure.

Q. And the trouble from pressure generally comes in the joints where there is caulking, does it not?

A. Yes, sir.

Q. The first thing that happens is that the caulking is blown out?

A. Rarely blown out. The joints will start leaking.

Q. Would leak at that point?

A. Yes. But you must remember that a leaking water joint will often "make up" of itself; it will rust up, whereas a leak-
5541 ing gas joint won't. When a gas joint starts to leak the gas iteslf lubricates the opening, and does not let it rust until it is recaulked again.

Q. And if the leak in the water main is sufficient to let the water flow that aggravates the leak so that in time we have a large flow of water rather than a small trickling which might rust up the joint?

A. Yes. If it is a strong leak it won't rust up the joint. If it is "bleeding" only it will rust up the joint.

Q. Water pipe certainly is not generally a heavier pipe than a gas pipe or main, is it?

A. Water pipes run slightly heavier in New York City than gas pipes, up to a size of twenty-four-inch. From twenty-four-inch up we use—under thirty-inch—thirty six and forty-eight, we use the same weight as water, but thirty-inch very nearly the same weight. The difference is so slight it would not make any difference in the handling at all.

Q. Would it surprise you to hear that the weight of water pipe laid in the City of Boston runs many pounds lighter per foot than

that which you have given as being used by the Consolidated Gas Company for their gas mains?

A. You have got to tell me which water pipe. They use there five or six different weights. They have got four weights to my knowledge; four distinct weights.

Q. Would it surprise you to know, for instance in thirty-six-inch mains put down in the City of Boston to carry water, the weight thereof was 391.6 pounds as against your 425?

A. No, it would not surprise me at all.

Q. Nor that the weight of their thirty-inch was 290.2 against your 311 pounds?

A. No.

Q. Nor that the weight of their twenty-four-inch was 200.6 as against your 215?

A. On the lightest schedule of weights—they have four schedules of weight there, and when you get to the heaviest schedule it
5542 is the heaviest pipe used for water pipe, I think, in this country to-day; the top weight.

Q. But these weights to which I have made reference are not such as used here? These are weights that are used in Boston, are they not?

A. I would not be surprised. I do not know positively. I know they have four weights, four scales of weights, and they use each scale under different conditions.

Q. And would it or would it not surprise you to know that these pipes to which I have made reference are designed to carry a pressure of over forty pounds?

A. It would not surprise me a bit. The pipes that I have there—our pipes are tested to a pressure of over one hundred and fifty pounds to a square inch. We do not have to deal with internal pressures at all; it is the external pressures we are looking out for.

Q. If it were that the report of a certain committee to which we have already made reference in the previous testimony, being the report of the Board of Division, relative to the distribution of gas, made to the American Gas Institute of Chicago, in 1906——

Mr. MATHEWSON: When has he referred to that?

Mr. KIRBY: You referred to it and I referred to it when Mr. Edgerton was on the stand.

Mr. MATHEWSON: Oh, yes. This witness has not referred to it.

Mr. KIRBY: I said the previous testimony.

Q. (Continuing.) Giving a weight of lead for joints and gas pipes, such as those used by Mr. Edgerton, would you be inclined to change your opinion that Mr. Edgerton had not used sufficient weight of lead?

A. No, sir; I would not.

5543 Q. Nor if the water pipes to which I have made reference in Boston used less lead for their joints than that which you have used for the joints of the pipes of the Consolidated Company?

A. Would it change my opinion?

Q. Would that in any way change your opinion?

A. No, sir; it would not.

Q. I think you stated yesterday that the cause of the breakage was generally from external causes?

A. External.

Q. Rather than from any internal pressure?

A. Yes.

Q. And that I presume might be the pressure of the weight of the earth or such material as was on top of the pipe?

A. Yes.

Q. By reason of the breakage in a water main the earth was sifting out underneath, or something of that sort?

A. Yes. In the water mains that I have seen break, it has been due to the pipe being improperly blocked.

Q. Now, there is some wrought iron gas pipe or main in this city?

A. Yes, sir.

Q. Not all cast iron?

A. No, sir. We haven't any of it.

Q. The Standard, I think, use wrought iron?

A. The Standard is all wrought iron, ten-inch and below.

Q. Your statement in reference to the necessity for bridging in the laying of pipe is one which you applied anywhere where there is traffic either by pedestrians or vehicles?

A. It would only apply to a city similar to New York, where you have got a crosstown street every two hundred feet.

Q. Well, you wouldn't need as much in a country village, but I suppose you would need some?

A. It depends on whether they would allow you in a country village to block the street and have the people go around the
5544 other way. You cannot do that in New York.

Q. It is a question of the people's desires?

A. It is a question of the demands of the city authorities.

Mr. MATHEWSON: This is a city regulation. We cannot help that.

Q. You have said that you have never made sales of rock taken from the trenches?

A. Yes, sir.

Q. Have you never sold rock or earth taken from the trenches for the purpose of fill?

A. I only know of one case of rock being sold in New York City in connection with any of our work, and that was in excavating for a new holder at 63rd Street and Avenue A. We had some good rock there, and some of it was sold at fifty cents a load, but never in connection with main work.

Q. Is it not the custom of contractors in the city when they are excavating a cellar or for other underground purposes, to make sale of the earth or rock excavated for use as fill in low lying lots?

A. No. The man who has got low lying lots to fill will always demand from fifty cents up per yard for dumping privileges.

Q. And you know of no instance?

A. I know of no instance in all my experience where one cubic foot of rock has been sold from trench work. I never heard of it.

Q. Now, the price which the owner of a low lying lot would charge

for the privilege of dumping thereon is much less than that which you would have to pay for the dumping from a dock?

A. We have often paid a little more in low lying lots, because it was cheaper on account of saving a long haul to the dump. We might have to pay fifty cents at the dump and it would cost
5545 fifty cents to cart, and if we get a low lying lot owner it would cost us perhaps sixty cents to dump and maybe not more than twenty cents to cart.

Q. Now, coming to this rammer, which you made reference to yesterday, and which has a circular end about six inches in diameter——

A. Five and three quarters.

Q. Five and three-quarters, to be exact. You do not pretend that you ram down the earth on the lower section of the main as it lays in the trench, do you, with this?

A. No, sir.

Q. That is only for pressing or pounding down the earth which is left in the main on top of the pipe?

A. We use the tamping bar—we use the rammer after we are through with the tamping bar.

Q. Which is this?

A. This is the rammer. The tamping bar is used first.

Q. In cutting your trenches, do you give them that width which is necessary to care for the caulking of the bell, or do you make a larger opening at that point?

A. We do no- use bell holes in work in New York City, and especially on avenues. There are so many drip pots and different fittings to go in, that we have the trench wide enough to do the caulking without allowing for bell holes.

Q. And that enables you to take off the many other connections you have to from the mains, without making additional width of trench for that purpose?

A. You mean for the service connections?

Q. Yes.

A. Yes, sir.

Q. Now, referring to these drawings, showing cross sections of various streets and taking, just for example, Complainant's Exhibit 288, being Broadway, at Morris Street, looking north, I note here a section marked 31, which I take it is of the Subway?

A. It is of the Rapid Transit Subway.

Q. And between the top of the subway and the surface of
5546 the street I note two circular sections, marked 7 and 9, which in the reference index it states are "gas mains?"

A. Yes, sir.

Q. I also notice a section of a pipe lying almost to the bottom of the subway, marked *l*, and in the reference index being marked as a "sewer?"

A. Yes, sir.

Q. The gas company's mains did not in those instances go under that sewer, did they?

A. No, sir.

Q. Are the mains in their present position the same as before the subway was built?

A. No, sir. That whole thing was rearranged when the subway was built, rearranged by the contractors for the subway.

Q. And at their expense?

A. At their expense.

Q. Taking, as another example, Complainant's Exhibit 289, Sixth Avenue and 14th Street, looking north, I notice a section marked 7, which on reference to the key I see is "Consolidated Company's gas mains"?

A. Yes, sir.

Q. I notice in the middle of what I take to be Sixth Avenue a section marked 19, which by reference to the key I see is a "four-foot sewer?"

A. Yes, sir.

Q. I think I am right in tracing this gas main so that the same runs over the sewer, do I not?

A. Yes, sir. But you can see if a main were carried out on a straight line it would come to the middle of the sewer. We do not go under a sewer where it is possible to go over it.

Q. There is no doubt about that. Now, in many of these cross sections, these drawings, in fact, in almost all of them, I notice either cross sections of the Rapid Transit subway or conduits for the Metropolitan Street Railway system, or pillars, that is the foundations for the support of the elevated railroad columns; I take it that
5547 neither the subway nor the conduits for the street railway system were built prior to the time when most of the mains of the Consolidated were in the ground, and your mains had to be removed when these structures were built; is that a fact or isn't it a fact?

A. It is a fact.

Q. And when they were removed it was at the expense of the contractor of the company putting in the subway or the railroad?

A. Yes, sir.

Q. You have placed in evidence certain photographs and made a statement relative to the size of various openings, which you have measured, and which you have stated were made for the purpose of putting down some of the mains for the new salt water system?

A. Yes, sir.

Q. Taking up the first of these, Third Avenue and 14th Street, west side, the width of cut is given as nine feet, whilst the size of the main is but twenty-four inches?

A. Yes, sir.

Q. You do not contend that in laying the twenty-four inch mains that a cut to the width of nine feet would be necessary, do you?

A. It was in that case.

Q. At this specific point?

A. Yes, sir. You can see down the entire block there. It is all the same; in fact, it goes from 14th way down to 11th Street the same way.

Q. Well, I cannot see very far, and in the little distance I see it very soon becomes much shallower, right under the truck, which is marked with the name of a roofing company. I think it is considerably narrower.

A. It may look narrower, but it is the same width all the way down. I went over it all the way and picked out a typical part. I did not pick out an extreme part or a narrow part; just an average part.

Q. Did you find any parts of that trench which were less than nine feet?

5548 A. There were parts which might have been less than nine feet, but there were many places where it was over nine feet.

Q. And if you had continued you might have found trenches for the twenty-four inch main which were considerably less than nine feet?

A. I didn't find any.

Q. Did you go to any of the places pointed out by Mr. Edgerton as having the width of trench which he testified to?

A. No, sir.

Q. You have no reason to believe that the trenches were not the width he indicated, have you?

A. I don't believe that it would show the trench that had to be repaved that he indicated. It might have been the trench that the contractor dug, and in that case I have given the maximum, which shows the trench might be two feet wide on the job, and yet the contractor might have to pay for six feet of paving before he gets through. I mean in those two photographs I presented.

Q. So these photographs in this detail simply have reference to the paving which has to be done, and not to the width of trench which would have to be dug to instal the main?

A. Oh, I beg your pardon, it refers to the width of the trench.

Q. Are you prepared to state that this trench at Third Avenue and 14th Street, Complainant's Exhibit 271, was dug nine feet wide?

A. Yes, sir.

Q. For the purpose of putting the twenty-four inch pipe therein?

A. Yes, sir.

Q. Did you see that trench when it was open?

A. I did, sir.

Q. And what was the condition of the excavation?

A. There were two or three mains in the way that had to be moved, and in moving those mains it was necessary to make a wide trench. Just what I have been testifying to; you cannot find a *palce* in New York where you can dig down where you do not have to widen your trench out.

5549 Q. And that is the reason these are all wide?

A. Yes, wherever they go down they have to move subsurface structures, and therefore must have a wide trench.

Q. If it happened the entire street were filled with mains, and you for some reason desired or it was necessary for you to put your main in the position occupied by some one of those, it might be the entire street would have to be ripped open so as to move them around to fit yours in?

A. It might be, yes. In fact, it was so on some of the avenues where the Rapid Transit went, that they could not have rearranged the pipe system unless they had the whole thing open.

Q. You have stated these are all for salt water mains?

A. All salt water mains.

Q. Will you show me any one of them that is in the middle of the street?

A. I don't know whether I can show you one of those, but I have got some of the others that are in the middle of the street. I have got some photographs taken.

Mr. MATHEWSON: There is one down the middle of the street.

Mr. KIRBY: I am asking as to these which are in evidence, and he shows me the one marked Fifth Avenue, Complainant's Exhibit 280, and that is the one which is nearest the middle of the street of the photographs which have been marked in evidence.

The WITNESS: Yes, sir.

Q. Is it not a fact that in putting down the salt water system this happened in many instances, that the streets have not had the pavement removed for a considerable period after the trench had been filled in?

A. The pavement removed?

5550 Q. The pavement replaced?

A. Yes, sir; in a great many cases.

Q. And that, I think you have already testified, has resulted in the edge of the asphalt, or whatever the pavement is, being worn or so that the necessity of replacing a larger width has occurred, where, if the asphalting had been done at once, the width would have been less?

A. Yes, sir.

Q. You made reference to the laying of certain large mains, I think it was on 126th Street?

A. Yes, sir.

Q. Do you know how long it took to lay that main?

A. How long it took? Well, you mean from the commencement of the work to the finish of the work?

Q. Yes.

A. It took practically, as I remember now, I should say, about three or four months, the greater part of the summer.

Q. And do you know how long it was after that trench was filled that it was repaved?

A. I don't exactly remember. I know it would not have been very long, because we do not allow a trench to remain unpaved very long.

Q. Do you do your own paving?

A. No, sir.

Mr. MATHEWSON: He refers to the temporary pavement we have to put over the trench.

Q. Do you put a temporary pavement over the trench?

A. Yes, sir.

Q. I do not have reference to that. I mean the replacing of the asphalt so the street would be in the condition it was in before you put down your main. Have you control over that?

A. Yes, sir.

Q. And what control is it that you have over it?

A. We send to the Asphalt Company that has the contract for the street, and if they do not come at the time we send for them again and look them up again.

5551 Q. And they charge you for the actual area replaced?

A. Yes, sir.

Q. Are you familiar with the character of pipe which is put down for the salt water system?

A. Yes, sir.

Q. What kind of pipe is it?

A. Cast iron.

Q. What kind of joints?

A. Hub and spigot.

Q. How is it caulked?

A. The same as gas pipe is caulked.

Q. It is laid by contract, is it not?

A. Yes, sir.

Q. Do you lay most of your mains by contract?

A. No, sir.

Q. Do the work yourself?

A. Yes, sir. The only mains we ever laid by contract since consolidation are the larger sizes, 30's and 36's, and 24's and one 20 inch.

Q. You have spoken of the price of lead, Mr. Simpson; is it not the fact that the price of lead varies often and greatly.

A. I don't know whether you call it varying, it is going up all the time; it never seems to go down.

Q. It has been higher than it is to-day, has it not?

A. Well, it might have.

Q. Was it not higher within the past six months than it is to-day?

A. I do not think so.

Q. Have you any record, Mr. Simpson, showing the actual depth of all your mains?

A. Yes, sir.

Q. Have you ever figured out the average depth of those mains for the different sizes of pipe?

Mr. MATHEWSON: You mean below the top of the pavement.

Mr. KIRBY: Below the top of the pavement.

A. I have had no need to figure; I have known it all along. I have seen them all, or practically all, and have been for so many years familiar with them that I know it without figuring it out.

5552 Q. And so when you give that depth, you refer to the ordinary laying of that main or pipe, and not to such instances where it would have to go over or under, or around obstructions?

A. I am referring to an average depth. There are, of course, many cases where the mains are far deeper than the average of two feet nine inches, and many cases where the mains are less than the average of two feet nine inches.

Q. So when you say two feet nine inches you take into considera-

tion those cases where a main may have had to go under a sewer at a corner?

A. Yes, sir.

Q. Or where it had to be dropped under a subway or something of that kind?

A. Yes, sir.

Q. And if that were twenty or thirty feet it might happen?

A. Yes, sir.

Q. Of course, it would make the average depth considerably more?

A. It would come in the average of two feet nine inches that I gave.

Q. If I understood your testimony correctly, you stated that you had examined some 90 per cent. of the mains, not only of the Consolidated Gas Company, but of the other gas companies in the Borough of Manhattan?

A. Yes, sir.

Q. I understood you correctly?

A. Yes, sir.

Mr. MATHEWSON: He said he had seen them.

Q. Or seen them, or inspected them?

A. Yes. They followed the same practice we did.

Q. Do you know how many miles of mains there are of the Consolidated Gas Company and these other companies?

A. Yes, sir.

Q. How many miles are there?

A. In Manhattan?

Q. In Manhattan?

A. In rough figures fifteen hundred, a little over fifteen hundred.

5553 Q. Do you mean by that active mains, or mains in the street?

A. Active mains.

Q. Corresponding to the 795 or whatever figure it is?

A. That fifteen hundred miles, of course, includes the twenty-seven miles of disused mains we have; it is fifteen hundred and some odd miles; I can give you that exactly.

By Mr. MATHEWSON:

Q. That means excluding abandoned mains?

A. That means excluding abandoned mains.

By Mr. KIRBY:

Q. But including the 27 miles of disused mains of the Consolidated Gas Company?

A. Yes, sir.

Q. You having to-day 795 miles of active mains?

A. Yes, sir.

Q. Mains actually in use?

A. Yes, sir.

Q. Have you ever laid your mains under the side walks in the uptown district?

A. No, sir. I have never laid them, but up until 19 years ago the City did not allow any gas main or water main to be laid under a macadamized street and in every case they would compel us to go under the sidewalks, so up to some years ago we had quite a few streets where the mains were under the sidewalks. At the present time the only streets they are under the sidewalks for any length at all are on 72nd Street on the west side, 72nd Street on the east side, 124th Street between Mt. Morris Park and Third Avenue and part of 110th Street, and in Broadway they have been taken out and laid in the middle of the street. That is about all; and a short stretch on 116th Street, between Third and Fourth Avenue.

By Mr. MATHEWSON:

Q. Did you mean laid in the middle of the street or under
5554 the sidewalk on Broadway?

A. They used to be under the sidewalk, but they are now in the street.

Q. You do not mean they are in the middle of the street?

A. No.

Q. Because the trolley cars are in the middle?

A. Yes. We have a small one in the middle of the street on Broadway, to supply the lamps.

Q. That is upper Broadway?

A. Upper Broadway, yes.

By Mr. KIRBY:

Q. Can you give us approximately the mileage of your mains, or rather the number of thousand feet of your mains which go under sewer or other deep conduits in the street?

A. No, sir, I could not. It would not amount to very much in mileage, because where we have to go down we come up again as soon as we can.

Q. Are those instances many?

A. They are getting more every day; I think you will find in my testimony I have testified that at the present time we are unable to cross avenues with any large size pipe without going down very deep.

Q. Those instances would likely be impressed upon your memory, would they not, where you have had to go down?

A. Yes, sir; some of them.

Q. Now, in your estimate for excavating and other operations which go into the laying, you have figured that on the average depth of trench which you have used, have you not?

A. Yes.

Q. And that is true of excavation for such deep holes as might have to be made to carry your gas mains under sewers and the other obstructions?

A. In connection with the larger sizes?

Q. Yes.

A. Yes, sir.

Q. Am I not right in assuming that at such point the cost
5555 of excavation is very heavy and the deeper down you go the greater the cost?

A. Yes, sir.

Q. And more handling of dirt and rock and such things?

A. Yes, sir.

Q. Taking up the troubles which you have referred to occurring in your stand-pipes or risers or street lamps during cold weather, will you tell me what is the cause of trouble in gas pipes when cold weather comes?

A. What is the cause of trouble?

Q. Yes, what does the cold do?

A. The cold, well the actual visible trouble is a formation of what looks like hoar frost inside the pipes, and if the cold continues this hoar frost gradually works towards the center and at last closes the pipe up altogether.

Q. And what enables that hoar frost to form?

A. What enables it to form?

Q. Yes, outside of cold. Is it moisture contained in the gas?

A. I suppose it is moisture in the gas.

Q. Could it be anything else but moisture?

A. I do not think so.

Q. It is not an unusual and uncommon hoar frost, it is the same as that which you would find where there is moisture present and cold comes in contact with it?

A. Yes, sir.

Q. If there were no moisture present are you of the opinion that there would still be hoarfrost formed in these pipes?

A. I do not think I am competent to answer on that; I am not much of a chemist.

Q. It would seem reasonable to you, would it not?

A. Any answer I would give you would be pure guessing.

Mr. MATHEWSON: He is not a chemist and is not a manufacturer of the gas. He simply observed conditions.

5556 Mr. KIRBY: It is not a question of chemistry.

Q. Do you have this trouble from the stoppage of flow of gas, which it ultimately amounts to, I presume, at the time of great cold, or at the time of a thaw immediately after a cold spell?

A. We have it—the trouble you are talking about we have at the time of great cold. There is another trouble develops at the time of thawing which is another trouble altogether.

Q. What is that trouble?

A. The trouble at the time of the thaw is with this condensation or I mean this hoarfrost thawing out, and if the pipe is at all trapped, collecting in the trap of the pipe and sealing the gas off. There might be enough hoarfrost form in the pipe to seal a trap in the pipe, and yet it might not be formed all the way to the center, so as not to let the gas through, so we find that in hundreds of cases.

Q. Do you ever find your risers frozen solid at about a point where they leave the earth?

A. Frozen solid?

Q. Yes. After a thaw, that is, does the hoarfrost ever develop, and water run down, and striking the cold earth, freeze at that point?
A. No, sir.
Q. Then the trouble during a thaw is when it comes from a trap filling up and in a way choking up——
A. Sealing off the gas.
Q. What happens to these——

By Mr. MATHEWSON:

Q. Would not an elbow effect the same result, or I suppose any sort of a bend?
A. No, the pipe has got to be trapped, you know. If there is a fall all the way back to the main, of course it would not stay there. The best evidence of that, you know, we pour in alcohol in the
5557 lamp stand pipes to thaw the hoarfrost out and it runs back into the main.

By Mr. KIRBY:

Q. Do you use alcohol to remedy trouble of this kind?
A. Wood alcohol.
Q. You do not use anything else?
A. If the wood alcohol does not work, we use a rod very often.
Q. Never use salt water?
A. No.
Q. What happens? You have spoken of these traps, as I understand it, if at various points along the main there is a trap placed for the collection of moisture which precipitates in the service pipes or in the mains, it flows back to the main, which has a slight dip and which will carry it back to the trap; am I right?
A. No, the traps are things which should not be there; we don't know of them until this thing happens and the service pipe seals off or the lamp seals off after a frost. We know there is some stoppage or that these traps are sealed with water.
Q. You do not mean an intentional trap?
A. No.
Q. But by reason——
A. Of the settlement of the ground or something, a trap is developed in the pipe.
Q. Do you have intentional traps in various parts of your distributing system?
A. We have drip pots on our main system and in some cases where it is impossible to have the service drip back to the mains there are house drips, as we call them, in the house.
Q. What is the purpose of these drip pots?
A. To take care of the moisture in the gas, the condensation.
Q. What happens to the contents of these drip pots in cold weather?
A. Nothing happens to them.
Q. They are pumped out?
A. We pump the drips summer and winter. Men are
5558 going around all the time pumping them out. The house drips are taken care of by shopmen who go around and empty them. They have records of them and take care of them.

Q. And this is done through all the months of the year?

A. Yes, sir.

Q. They do not freeze up in the winter so they can not be pumped?

A. I have known cases of their freezing up, certainly.

Q. But it is an exception and not the rule?

A. The exception.

Q. Now, have you a record in your department showing the number of complaints or troubles of street lights which are out during the various months of the year?

A. Well, we have—it could be got up in some way, I suppose. We do not keep any separate account of the number that are out.

Q. Can you tell the number of street lights which were out and the number of hours thereof during the month of January, 1904 and also the month of January, 1905?

A. We could find it out easy enough.

Q. You have not that data at hand?

A. I have not that data at hand.

Q. Nor a comparison for any other two months?

A. No, sir.

Q. Mr. Simpson, in measuring the distances as laid down on these insurance maps which your company uses to plot your mains upon, didn't you measure from, say, the corner of an avenue and one street to the corner of another avenue and another street distant several blocks therefrom, or did you only measure the length of the block from one corner to the next corner without crossing the street?

A. I took several kinds of measurement. Some cases I measured across the entire page and took the difference as given by Mr. Marks from point to point, as given by him on this sheet, and I
5559 compared that with the official record. In other cases I took just single blocks also as given by him.

Q. And did you find these maps were correct in the width of their streets?

A. I did not measure it at all to see if they were the correct measurements of the street.

Q. You have made certain criticisms of Dr. Marks' statement of distances, using as an illustration a length of pipe running around a block and s-ating, very properly, that if thaf pipe is distant six feet from the curb, it is greater in length than one which is only distant three feet from the curb. As a matter of fact, pipes are not laid in that way, are they? They are running in straight lines down an avenue or across a street?

A. Either I do not understand you, or you did not understand me. I said that wherever the pipe ended at an intersection or a street, that in every such case his measurement must be wrong, because that pipe, neither on the avenue nor on the street was put down to scale.

Q. Have you many pipes which simply run a block or two blocks?

A. Do you mean many pipes that end at a certain point, like I am talking about?

Q. Yes.

A. Thousands. You can see them at one glance at the volumes; there is not a page where you will not find several instances.

Q. Did you calculate the number of feet which instances of that kind would make?

A. No, I took a few instances and the actual distance from the curb, and the distance as given apparently in the volume.

Q. It would make only a very few feet on each block, would it not?

A. It might amount to—it depends entirely on how that is laid down on the map and how far it is from the curb.

Q. It could not amount to more than the distance of the mains as actually in the ground, that is the distance from the curb
5560 as the main is actually laid, and the distance from the curb as assumed by Dr. Marks?

A. It would amount to this difference, that if his volume shows that main ending at three feet from the house line and, as a matter of fact, that main were ten feet from the curb, as they frequently are, it would make a difference of ten feet less three, plus the width of the sidewalk, in every case.

Q. And instances where pipes are laid in that way, compared with the total length of pipe in the city, are very small, are they not?

A. The cases that I am talking of—are you talking about the number of instances of that kind?

Q. Yes.

A. As I said before, there are thousands of them in those volumes.

Q. The number of instances brought down to the number of feet of pipe represented by those instances?

A. What the difference would be I could not say. It would be a tremendous calculation. It might amount to hundreds of thousands of feet, and might only amount to a few thousands.

Mr. KIRBY: That is all I have to ask Mr. Simpson.

The MASTER: Mr. Burr: You may cross-examine.

Cross-examined by Mr. BURR:

Q. Referring, Mr. Simpson, to Complainant's Exhibit 286, and the other purporting to be a diagram showing the situation at various points regarding the number of sub-structures in the streets, are you sure the scale of feet as given here is correct?

A. I will not say that I am sure.

Q. But I think you said yesterday that from your own knowledge you knew of the situation at various points described on these diagrams?

A. I said from my own knowledge I knew of the situation
5561 in a general way. I *and* not familiar with every detail of it, of course.

Q. Are you quite sure there are thirteen gas mains at Broadway and Bleecker Street, as appears on this exhibit, Complainant's Exhibit No. 286?

A. That is counting the mains on Bleecker Street and the mains on Broadway?

Q. I am speaking of the situation of the locality as it appears on that diagram?

A. This shows the mains on Bleecker Street and the mains on Broadway.

Q. Well, do they not number thirteen?

A. They evidently do, thirteen, yes, sir.

Q. Some of those are the mains of the old companies that existed as long ago as 1823?

A. I doubt it very much.

Q. Well, take the Mutual, how long has those mains been in the ground?

A. The Mutual dates back about, I think, to 1872.

Q. And the Equitable?

A. The Equitable dates from 1883; they started laying mains then.

Q. Can you give the sizes of the mains at that point?

A. Do you want me to call off the sizes?

Q. Yes.

A. One four-inch, seven six-inch, and five eight-inch.

Q. The column headed "Reference" on each of these diagrams is explanatory of the location of the various mains, and so far as the gas mains are concerned, to your knowledge it states accurately the size of the mains?

A. Yes, sir.

Q. What points in the street are there to your knowledge and from your experience where there are a great- number of gas mains converging than thirteen?

Mr. MATHEWSON: At a single corner, I suppose?

Mr. BURR: I said converging at a single point.

5562 A. You mean taking a street and avenue together?

Q. Yes.

A. Third Avenue and Forty-second Street.

Q. How many on Third Avenue and how many on Forty-second Street a- that point?

A. Ten on Third Avenue—nine on Third Avenue and seven on Forty-second Street.

Q. That is sixteen at that point?

A. Yes, sir.

Q. How many of those were laid, if you know, since the subway was built?

A. The Rapid Transit Subway?

Q. Yes.

A. None.

Mr. MATHEWSON: That does not go to Third Avenue.

Q. There is no subway at that point, is there?

A. No.

Q. How many of them have been in the street at that point since 1865?

A. In 1865 there would be two on the street and two on the avenue.

Q. What size were those mains?

A. There was a Metropolitan twenty-inch on Forty-second Street—there was at that date; of course, it has been changed since that time; and a Metropolitan four and a Metropolitan six on the avenue and a Metropolitan on the north side of Forty-second Street at that time; that is in 1865.

Q. Yes. Now, when the frost penetrates into the ground say four feet, does it in addition to affecting the mains affect the services?

A. Yes, sir.

Q. How far——

A. I won't say in addition, because I have never yet known of a case of a main being what you might call affected by the frost, not stopped or anything.

Q. A main is not affected?

A. No, sir.

5563 Q. I understood you to say that hoarfrost gathers about it. Were you speaking of pipes and not mains?

A. Yes, sir, service pipes. Of course, if the cold snap is prolonged enough it would eventually stop up a main, too, I suppose, if it kept on; I don't know. In the case of the smaller services it stops up.

Q. The service pipe runs from the main through the building line to the house?

A. Yes.

Q. How much inside of the building line does the service pipe run?

A. We run generally three feet.

Q. That then connects with the meter?

A. Yes.

Q. And I suppose that the effect of the frost is felt outside the building line and not inside of it?

A. It is felt inside the building line if the pipe is not protected, or if it is exposed to cold weather.

Q. After you put the service pipe in you never take it out, do you?

A. After we put the service pipe in we never take it out?

Q. Yes.

A. Yes, very often.

Q. For what purpose?

A. If the service shows any signs of wear we put new pipes in, or they might want a larger pipe, and we take it out and put in a larger one.

Q. But you do not take it out because a man changes from gas to electricity, do you?

A. No.

Q. It is practically left there forever, as long as it is serviceable?

A. Yes, sir.

Q. When did you first see the maps to which reference has been made, and from which Dr. Marks took his measurements?

A. When did I first see them?

Q. Yes.

A. In 1889.

Q. Had there been a series of maps in existence before that time?

A. Yes, sir.

Q. What became of those maps?
A. I could not say.
Q. Do you know why new maps were procured?
A. Yes, sir.
5564 Q. Why?
A. I took charge as general superintendent of mains and the system of maps they had then was a separate map for each of the old companies, comprising the Consolidated Gas Company, and I thought it better to have them in this form that we have them now.
Q. And then these maps were made under your supervision?
A. Yes, sir.
Q. And of course you intended that they should be as accurate as it was possible to make them?
A. As far as printed to scale is concerned.
Q. In every respect?
A. No, sir, I intended——
Q. You did not——

Mr. MATHEWSON: Let him finish his answer.

The WITNESS: I intended them to be accurate as showing our main system by the size and the streets on which we had mains, but did not make any attempt or give any orders that the mains should be put on there to scale, or for them to adhere to the right distance from the curb.
Q. Did you give positive orders not to do that?
A. No, I did not.
Q. Whom did you employe to make those maps?
A. One of my draughtsmen, a man named St. Aubyn who is now in Philadelphia.
Q. How long were they engaged in making the maps?
A. It took him, I should say, about seven or eight months.
Q. How many maps are there altogether?
A. Eleven in Manhattan and the Bronx—twelve.
Q. That is, twelve volumes of maps?
A. Twelve volumes, yes, sir.
Q. How many individual maps are there?
A. Oh, I don't know, I never counted them.
Q. Three hundred or fifty or four hundred?
5565 A. No, there must be — thousand, I should think, must there not?
Q. You remember when Dr. Marks testified here and had marked for identification the maps of mains or schedule of mains which he prepared from your maps, as he testified?
A. Yes.
Q. And immediately thereupon a copy of that schedule of mains was handed to you through Mr. Mathewson?
A. No, sir. I have never seen anything but that schedule which we had in court here.
Q. That is what I am speaking of.

Mr. MATHEWSON: That is Exhibits 92 to 103?

The WITNESS: It was never handed to me at all. I sent down here and asked Mr. Mathewson if I could look through them and check them up, and I sent down here for them.

Q. And you got them?

A. Yes, sir.

Mr. MATHEWSON: But he did not get them immediately after they were in. I think it was when we adjourned before Christmas. I have had them, there is no doubt about that, and I have had them here for cross-examination of witnesses, but you asked him if he got them as soon as they were put in, and I say he did not and he says he did not.

Q. How soon did you get them after they were put in?

A. It might be two days, possibly three days.

Q. How long were you engaged in comparing them with the maps in your possession?

A. How long?

Q. Yes.

A. Well, off and on ever since.

Q. That is about how long, a month?

A. Well, some days we did not do anything with them at
5565 all and oth[illegible]days we did; I couldn't give the exact time.

Q. Well, it is about a month since you received them?

A. I suppose it is about that.

Q. And you have been engaged in comparing the schedules as prepared by Dr. Marks with the actual maps in your possession off and on ever since, as I understand you?

A. Off and on, yes; not continuously.

Q. And I understood you to say yesterday, at that, you had only succeeded in comparing about 20 per cent. of the schedules made by Dr. Marks?

A. That is all.

Mr. MATHEWSON: He said he had compared 20 per cent., not that he had succeeded only in comparing 20 per cent.

Q. That is the point, that although you tried to do more, it was all you were able to do?

A. No.

Mr. MATHEWSON: He did not testify that at all.

The WITNESS: I only did what I wanted to do. I looked to see what kind of errors were made, and when I found a bunch of errors on something, I stopped on that and went to some other kind.

Q. Have you read the testimony of Dr. Marks at all in regard to these maps?

A. Yes.

Q. Do you recall his testifying that before the maps were measured that the scale was proven?

A. I remember his testifying something about the scale; just what it was I don't remember.

Q. Have you got a volume of the maps here?

A. Yes, sir.

Q. Will you produce volume 6?

5567 Mr. MATHEWSON: Dr. Marks expressly testified that the scale was not proven, and that he did not test it by any official maps at all.

(Volume produced by the witness.)

Q. Take the map—what does this 111 mean?

A. Page 111.

Q. What does 107 mean?

A. No, that means 111 is a continuation of that.

Q. This is page 107, volume 6 of the maps?

A. Yes.

Q. Where does the scale appear?

A. Here (indicating).

Q. Will you measure it?

A. Measure the scale?

Q. How did you determine the accuracy of the scale?

A. I took, for instance, from that point to that point (indicating).

Q. From the line marked East Fifty-second Street?

A. It does not make any difference; say from that point to that point (indicating).

Q. From the top to the bottom of the map?

A. Yes. I then compared it with the scale to see how much it gave me according to that scale there, and then I compared that with the official record.

Q. Now, this map is done in colors?

A. Yes, sir.

Q. Do you know what the various colors represent?

A. Yes, sir.

Q. What do they represent?

A. Various sizes of mains, that is an eight, that is a six, that is a four, that is a sixteen, that is a sixteen, that is an eight and that is an eight and a six, and so on (indicating).

Q. But the buildings are all colored, also, every building, every piece of real estate is colored?

A. Yes, sir.

Q. What does that mean?

A. That is done by the man who provides the maps, to indicate different kinds of buildings. That pink there indicates a

5568 brick building, the yellow you will find indicates frame buildings, and those are frame buildings there (indicating); and that indicates a tenement house or an apartment house or a flat. Those are private residences (indicating).

Q. And as each piece of property changes, it is changed in your map, is it not?

A. Yes, sir.

Q. What is the object of keeping this so thoroughly with regard to the houses and apartments and buildings?

A. What is the object?

Q. Yes.

A. Well, because this is a map for reference.

Q. Well, in other words, you, I understand, Mr. Simpson, follow

up the buildings in the City of New York for the purpose of introducing the gas, do you?

A. Yes, sir.

Q. And do you consult this map or any other book?

A. No, sir, we have men out in the district to do that, and this is done by the people who sell you the maps.

By Mr. MATHEWSON:

Q. What is done?

A. This pasting on alterations to buildings.

Q. That is, indicating the character of buildings?

A. Yes, sir. If a building—for instance, this is pasted on now (indicating). They come once a month and paste in all the changes in the buildings.

By Mr. BURR:

Q. And you, I understand, keep in touch with the Building Department, and keep in touch with all the new buildings that are going up and make your gas connection at the proper time with each building?

A. Yes, sir.

Q. That is done throughout the whole island of Manhattan, is it not?

A. Yes, sir.

5569 Q. Now, then, you have this system of coloring to show the character of the mains in each street?

A. Yes, sir.

Q. As it appears upon each one of these maps?

A. Yes, sir.

Q. Can you tell offhand what these various colors mean as to the sizes of mains?

A. Yes, sir.

Q. Did you find in Dr. Marks' compilation of his schedule, as taken from these maps, any inaccuracy as to the duplication or triplication or quadruplication of mains in the streets?

A. I did not look at it at all, never thought about it.

Q. So you have nothing to say as to the accuracy or inaccuracy of his statement in that regard?

A. No, sir, nothing at all.

Q. Now, when you abandon a main, or when you disuse a main, what do you do on this map?

A. We make an erasure. If this main here were to be abandoned, we would make a little erasure there and there (indicating), and write on it the year it was abandoned or disused.

Q. Can you point out in the series of maps you now have here in the Master's office the location of the seventy miles of abandoned mains which you have testified to?

A. Yes, I can, if you will have the patience to go through all the volumes.

Q. You could show that, could you?

A. Yes.

Mr. MATHEWSON: Seventy-five miles that were abandoned above the 822?

The WITNESSS Yes.

Mr. BURR: Which is it, 822 or 795?

Mr. MATHEWSON: You know as well as I do; 822 includes the mains which were called active mains and those which were disused for some purposes exclusive of the abandoned mains, which were some seventy or eighty miles more. The testimony is that
5570 the abandoned mains included would make 880 or 890 miles, my recollection is.

Q. I notice here at this point, East Fifty-second street, between Fifty-second and Fifty-seventh Street and Th-rd Avenue, on Third Avenue, there are how many mains, four, five?

A. Five, yes, sir.

Q. These breaks in the line showing the main, has that any particular significance?

A. It indicates the system.

Q. The system?

A. Yes, sir.

Q. It indicates the company to whom the mains belong?

A. Yes, sir, before consolidation.

Q. Take Third Avenue at this point, can you tell off-hand by the coloring there, and the appearance of those lines what mains they are and what companies they belong to?

A. Yes, sir, that is a six-inch Metropolitan.

Q. The red line?

A. The red line. That was a six inch Knickerbocker.

Q. That is the yellow?

A. Yes, but made a Metropolitan; that is a sixteen-inch Municipal.

Q. One is orange and the other is yellow?

A. No, they are supposed to be the same color. That is an eight-inch Municipal and an eight-inch Metropolitan.

Q. The eight-inch Municipal is the blue line?

A. They are both blue lines.

Q. And the other one is what?

A. Metropolitan.

Q. Now, you read Dr. Marks' testimony that within the time allowed him he had these mains measured by means of a steel tape upon each map?

A. Yes, sir.

Q. And you heard him testify that so far as these corners to which you have referred are concerned, he got the dimensions of those corners through curving the steel tape?

A. No, sir, he did not say that at all. He said where there
5571 wasn't a straight line that he curved his tape, put it on edge that way; for instance, if that main went around that way in a curve, he would place his tape on edge like that (indicating).

Q. Well, it would be possible to get the dimensions of the curves by standing the steel tape on edge, wouldn't it?

A. No, sir, because that curve is not drawn to the scale.

Q. Assuming that the scale was all right?

A. Assuming these mains were put in to scale, you could get it, but that curve from start to finish might be one hundred feet or twenty feet, the length of the curve.

Q. And I understand you to say that when you make a change in the main you report to the head office and there shortly after it is entered in the books, that is the system, and from the books it is entered in the maps?

A. When a main is laid or any alteration made, it is sent to me and it is entered on the books and on the maps.

Q. Do you remember when your attention was first called to this matter of the mains you testified on page 338 of the record that those maps correctly set down the exact situations with regard to the maps.

Mr. MATHEWSON: Suppose you let him see what he did testify to.

Mr. BURR: I will read it. You were asked: Q. And it is part of your duty, is it not, to keep a record of what work is done upon every main in every such street? A. Yes, sir. Q. And for that purpose you must have a very accurate record of the work that is done on such mains? A. It is not kept in detail in the way you mean. I get the pay roll every week and it is entered up in the pay roll what is expended for new mains, repairs, overhauling
5572 and so on, sub-divided under those headings. Q. I understood you to say you had a map showing accurately the whole system of mains in the City of New York? A. We have maps showing the entire system of mains on the Island of Manhattan belonging to the Consolidated Gas Company, one system of maps. Q. And have you another system showing the mains of the other companies? A. We have copies of maps of their-, or of maps we made ourselves before the other companies were consolidated. Q. So taken together for your proper information you have a complete record through these maps of every main in the streets of the City of New York? A. Yes, sir; every gas main. Q. Every gas main, that is the only main I am speaking of? A. Yes, sir."

Mr. MATHEWSON: All of which is so, but he does not say they are drawn to scale.

The WITNESS: This is an accurate map we have of our system of mains. It does not say it is drawn to scale.

You were asked:

"Q. Where is that series of maps? A. In my office."

A. Yes, sir.

"Q. Mr. MATHEWSON: Those were the ones that weighed a quarter of a ton, that Senator Page asked me about. Q. Does that map show the date of the putting down of each main? A. No, sir; no dates at all. Q. In order to understand that map one would have to possess the book which you have with this accurate record you spoke of? A. No, not to understand it. If you wanted to get the
5573 distance from the curb and the depth you would have to have the book."

A. Exactly.

Q. So that with that exception these maps are accurate?

A. Yes, sir.

Q. How is it that you testified yesterday that in every instance you examined these maps the scale is defective?

A. I am not saying for one minute that they are drawn to scale. I continued to tell you that they are not drawn to scale.

Q. Do you wish the court to understand that all these maps are inaccurate in the scale of feet as shown?

A. These maps are absolutely correct as showing on any one street what gas mains there are belonging to the Consolidated Gas Company. I never pretended that they showed the distance from the curb or the length of main there was there, but if this map shows, as it does here, that there are two six-inch mains on Fifty-fifth Street between Second and Third Avenues, that is absolutely correct; there is not a main on these volumes that should not be there.

Q. I notice on this map on page 107 there is a scale of feet given.

A. Yes, sir.

Q. And also a metric scale?

A. Yes, sir.

Q. Decameters and hectameters?

A. Yes, sir.

Q. Do you wish to be understood as saying that both these scales are inaccurate?

A. I have not bothered with that at all, I am using the one used by Dr. Marks.

Q. The one you have used is inaccurate?

A. Yes.

Q. And every scale of feet you examined in your examination of 20 per cent. of Dr. Marks' work you found to be inaccurate and against the company?

A. Yes.

Q. Short?

A. Yes.

5574 Q. And do you now say that every scale of feet on these maps is inaccurate and short?

A. No, sir.

Mr. MATHEWSON: He says he has examined 20 per cent. How can he say as to the others? The presumption is that they are.

Q. Did you ever examine the scale of feet of these maps prior to the examination you have made because of the schedule of mains given by Dr. Marks?

A. No, sir; I never had occasion to. I never used these maps for getting distances or anything of that kind. Never dreamed of doing it.

Q. These are kept at the main office of the company?

A. These are kept at the main office of the company for nothing but ready reference, showing the size of mains on a street and the side of the street they are on. That is purely all they are for.

Q. I thought you said, in your direct testimony, when you were first questioned about these, or Mr. Mathewson did in your presence, that it would take six months to make a copy of these maps?

A. A copy? I don't remember of speaking of making a copy of the maps.

Q. Don't you remember we asked for these maps when you were first on the stand?

A. Yes.

Q. And they were referred to as weighing ten tons, and that it would take six months to examine them?

Mr. MATHEWSON: Half a ton, do not make it ten.

Q. Do you remember being asked about the seventy miles of abandoned mains, Mr. Simpson, when you were first examined on this inquiry, and that you testified then that there was no way that you could tell where the seventy miles of abandoned mains were
5575 located?

A. No, sir, I said it could be picked out, but it would take a long time.

Mr. BURR: I will continue my examination after recess.

At 1 p. m. adjourned for recess until 2.15 p. m.

After Recess.

Q. What do you say was the total difference in feet between your measurements and Dr. Marks' schedule?

A. You mean to start with, before we found any errors.

Q. Yes.

Mr. MATHEWSON: Mr. Simpson's was not by measurements. He gave no measurements.

A. I just take Mr. Marks' testimony, that is all. Professor Marks, in his testimony allowed us 3,862,282.90 feet of active mains, and 230,630.40 feet of disused mains, making a total of 4,092,913.30 feet against our total of 4,344,849.00 feet.

Q. That would make a difference of how many thousand feet. Something like 251,936 feet?

A. 251,935.70 feet. And from that should be deducted though, the 29,111 feet that Mr. Marks' allows for the Bronx.

By Mr. MATHEWSON:

Q. That 29,111 was not in his total?

A. No, he allowed it for the Bronx, but did not put it in his total. Leaving 222,824.70 feet.

5576 By Mr. BURR:

Q. Now, is that your understanding of the only difference between Dr. Marks' figures and yours with regard to these mains?

—. ——.

A. That is the only difference between your claim and his figures, as to mileage?

A. Yes, sir.

Q. How many miles would that represent?

—. Do you want it roughly or exactly?

Q. Roughly.
A. About between forty-three and forty-four miles.
Q. Now, you have stated that you have found from an examination of the maps that there were five maps omitted?
A. Five maps omitted.
Q. What maps were they?
A. Pages 118, 119, 120, 121 and 122 of Volume 6.
Q. How many miles do they represent?
A. 24.25.
Q. And the total was forty-four miles?
A. Forty-four, yes, sir.
Q. That makes a difference of twenty miles?
A. Yes, sir.

Mr. BURR: Now, in all fairness, it is proper I should say that we have found that Mr. Simpson is correct in that regard; that we did omit the five maps. The young men who had the compilation had them on their original notes, but in some manner or in some way due to the magnitude of the thing they omitted those five maps, and it is only proper to say that; but you will appreciate the great undertaking Dr. Marks tried to accomplish in taking the measurements of this vast number of maps.

Q. Now, the accountants' report, Mr. Simpson, is that December 31st, 1905, from the books of the company, there appeared to be 804,594 miles of mains (page 1449 of exhibits). I show you
5577 the statement as presented in that regard. I am speaking of the report of Marwick, Mitchell & Company, the accountants?
A. Yes, sir.
Q. As it appears in City's Exhibit 87; is that correct?
A. I would not say offhand it is correct.

Mr. MATHEWSON: Of course, Mr. Burr, the main mileage as we had it out yesterday differs from you in that if we abandon a main that comes out and then the new main goes in, and that represents those since the 31st of October, which was the date of our main mileage of 822; and December 31st, some mains had evidently been abandoned or cut off and other mains had been put in. Undoubtedly, that represents the difference.

Mr. BURR: What I would like to have clear is: is there any doubt that the mileage, as given by the accountants and taken from the books of the company as such mileage appears on that date, is correct?

Mr. MATHEWSON: I don't know. I don't think Simpson could tell offhand.

The WITNESS: I could not tell offhand. I will look it up.

Mr. MATHEWSON: I will have Mr. Simpson or somebody else look it up and he can answer the questions?

Q. Now, Dr. Marks gave the total active mains in Manhattan as 731.49 miles by his measurements, and to that must be added, as I have already stated, the five maps omitted, 24.25, which would make a total of 755.74.
A. What about the Bronx.

Mr. MATHEWSON: That is the Bronx.

The WITNESS: No; he said Manhattan only.

5578 Q. The Bronx is omitted from this?

A. No, sir. It is not included in Mr. Marks' total at all.

Q. Well, we will assume for the present that the Bronx was omitted from it.

A. (No answer.)

By Mr. MATHEWSON:

Q. That would make how much—five and one-half miles more?

A. About five and one-half.

By Mr. BURR:

Q. Then the total disused mains was 43.68; abandoned .05, which would make the total 799.48?

A. Yes, sir.

Mr. MATHEWSON: That is Dr. Marks' total?

Mr. BURR: Yes.

Q. And if you include the Bronx it makes 804?

A. Yes.

Mr. MATHEWSON: Always state whether it does according to yours, or does according to Mr. Marks' figures.

The WITNESS: According to Mr. Marks' figures the Bronx was not included, the 29,111 feet.

Q. And the 804 miles would be his total putting in the Bronx, and putting these five maps omitted in?

A. Yes.

By Mr. BURR:

Q. I call your attention to City's Exhibit 91, as it appears on page 1538. You will see that Dr. Marks has given there for Manhattan 731.49; for the Bronx, 5.51; total, 737. So you will see he did not include in that 731.49 the Bronx.

A. I said he did not include them. He left it out.

Q. Your figures were 795?

A. Yes.

5579 By Mr. MATHEWSON:

Q. And 24.25 would make 761.25 for his measurement of active mains?

A. There was a whole lot more things here that he did not get out. Here is a clear omission, you know. An omission in the schedules, eight miles alone.

By Mr. BURR:

Q. Marwick & Mitchell give 804.59 as the number of miles in their exhibit, to which I have called your attention. Dr. Marks gives 731.49 miles in the Borough of Manhattan. He allows for the five maps omitted 24.25; total, 755.74; total disused mains, 43.68; abandoned, .05, making a total of 799.48, to which if you add the Bronx 5.51 gives 804.99, or exactly what Marwick & Mitchell gave.

Mr. MATHEWSON: That is the barest kind of a coincidence. In these schedules Mr. Simpson has presented here there are miles more omitted besides that which he points out; besides those maps, whole blocks here and there.

The WITNESS: The one item of the scale alone would——

Q. Now, if before measuring the mains on the maps the correctness of the scale was tested and the measurement of the mains was made by a correct scale, that would make some difference in your claim as to the difference, wouldn't it? If the scale was corrected before the measurements were made?

A. I am absolutely convinced that if those maps were drawn to a scale and an attempt was made to measure the length from those maps I do not believe there is a human being in the world to-day could get the thing correct in less than six months' hard work.

Q. Of course, we did the best we could under the circum-
5580 stances; you understand that, Mr. Simpson?

A. I suppose so.

Q. And you are now reiterating what I think you called attention to in the early part of your testimony, that it would take six months to measure these records and maps of mains?

A. I know *I* could do it in six months.

Q. And did you take these examinations yourself of these corrections?

A. Some of them I made myself, on some of them I had the examinations made and attention called to them, and then checked them up after they were shown me. I may say I have all the volumes in court with reference to that matter there, and you may check up anything you may want to check up now.

Q. Have you any explanations to give as to why the maps do not agree, as you claim, with the scale given?

A. Yes, sir; because the man that made the maps explained to me that it was due at first to the shrinking of the paper, and then the ruling of the paper, pasting it on the linen back and ruling it.

Q. Making allowance for the shrinking of the paper it would be possible then to correct the scale?

A. No, because your paper shrinks one way, and your scale shrinks the other. You take a line running up and down the page, and your scale runs across the page, so that both shrink differently.

Q. Who took the photographs of the trenches, or openings?

A. The first one was taken by Mr. Fogg and the others were taken by Mr. Bennett.

Q. Who is Mr. Fogg?

A. Mr. Fogg is one of my engineers.

Q. Who is Mr. Bennett?

A. He is a gentleman connected with the Consolidated Gas Company.

Q. Have you a photographic department there?

A. No. We have a camera, a large apparatus, and we have three or four official photographers.

5581 Q. Did you give any instructions to the photographers as to what you wanted him to do?

A. I did sir; I told him to take photographs of certain localities showing exactly the conditions existing there.

Q. And you pointed out the spot you wanted photographed?

A. I did not point out the spot I wanted photographed. I pointed out the blocks.

Q. Well, for instances, where you photographed yourself you had pointed out that spot?

A. I stood on the spot myself, yes, sir.

Mr. BURR: I merely desire to impress upon the mind of the Master and to disabuse any impression that might have been received from the statement yesterday that in all cases these things were against the company—Dr. Marks' figures, shortages, etc., that these maps were omitted. We find that the five maps omitted is the fact, and as I say you will appreciate the——

The MASTER: Oh, I think I understand it.

Mr. BURR (Continuing): The magnitude of the job Dr. Marks attempts to do in connection with the examination of the books and the appraisal of the machinery and property of the plants.

Mr. MATHEWSON: And counsel and the Master will also appreciate the force of my suggestion at the time that the work was utterly idle and useless and without value and would be.

Mr. BURR: That is all I want to ask, Mr. Simpson.

Redirect examination by Mr. MATHEWSON:

Q. Mr. Kirby called attention to the fact that the company employed one main where the pressure was as high as a pound and you stated that that continued only for a short distance. As a
5582 matter of fact is that not a trunk main from which no services are drawn?

A. It is.

Q. Running down town?

A. It is a main leaving Twenty-first Street Works and runs downtown to Beaver Street—has only one connection off it between Twenty-first Street and Beaver Street.

Q. And that not a service?

A. No, sir. That is a twenty-inch.

Q. And the pressure falls to about 2½ inches to the end. *Q.* So that the high pressure continues only for a very short distance?

A. The high pressure continues, what you might call high pressure does not continue for more than half a mile from the works.

Q. When you testified that one block and two wedges were used to every six feet of pipe you said that so far as the main laid under your supervision was concerned that you knew that from the laying, as to the balance of the pipe which was laid before you took charge, that was the result of your observation, was it?

A. Yes, sir.

Q. At what time did the East River Gas Company begin to use the heavier mains the same as are used by the Consolidated, and by whose advice and how many years ago?

A. Began about five or six years ago.

Q. And upon whose advice was the heavier main employed after that?

A. Mine.

Q. Now, in reference to the weights of the main, you testified, I think, that about one-half the present mileage or more than half had been laid new since 1884, either as new construction or in replacement of smaller pipe?

A. Yes, sir.

Q. As to the old mains which have not been replaced, isn't it the fact that hundreds of thousands of feet of the old mains have been taken up?

A. Hundreds of thousands of feet, yes.

5583 Q. Have you had occasion to use those mains which were taken up from time to time in repair work?

A. Some of the sizes, yes, sir.

Q. And in that case were they weighed by the company before being sent out?

A. Yes, sir.

Q. And did you find——

A. That is the mains, the pipe is weighed——

Q. And did you find that that old pipe, so weighed ran below the weight which the company is using now?

A. No, sir.

Q. So that all your tests, and all your observations, teach you that the old pipe was as heavy as the present?

A. Yes, sir.

Q. Now, Mr. Marks, and possibly one other witness, testified as to a hypothetical system of mains involving one main in a street. If that were to be installed, would it, in your judgment, cost more or less than the present system of mains as carried on the books of the company, $7,852,000?

A. It would cost a great deal more.

Q. And what would be the effect as to services, the length of services, and so forth?

A. It would necessitate running a great many long services, 50 per cent. of them would be long.

Q. If you have to lay your mains on the side of the street, wouldn't that mean you would have to run some of your services in together, and over, around, or beyond the sub-surface structures, from the one side of the street to the other?

A. It certainly would.

Q. What has been the effect of that in reference to the length of service—to increase or reduce the size?

A. To reduce them.

Q. Would you consider such a system advisable, quite aside from the matter of expense and installation, a single main system throughout the city?

A. I would not, sir. I would say furthermore as far

5584 as the avenues were concerned it would be impossible, and in a great many of the streets it would be impossible.

Q. (Handing papers.) While we are on this subject of pressure,

have you received complaints from the Chief Engineer of Light and Power of the City of New York, Mr. C. F. Lacombe, who has testified here, in reference to the pressure which you have maintained within the last few months?

A. Yes, sir.

Q. Are these the letters to which you refer?

A. Yes, sir.

Q. Will you read the first one on the record, the first date?

A.—

"BUREAU OF LAMPS AND GAS.
NEW YORK, *November* 5, 1906.

Consolidated Gas Company, 4 Irving Place, City.

GENTLEMEN: The following is a copy of letter received from the Gas Consumers' Association which is self-explanatory:

"Mr. C. F. Lacombe.

DEAR SIR: We find that the trouble with the lights at the Pumping Station, 179th Street and Amsterdam Avenue, is due to the insufficiency of pressure of gas in the service and the regulators are in no way to blame for the trouble. We met the inspector of the Consolidated Gas Company here by appointment and demonstrated this fact to him conclusively.

Yours very truly,
(Signed) W. S. FURMAN, *Mgr.*"

Kindly give the above matter your early attention, and report on same.

Very truly yours,
(Signed) C. F. LACOMBE,
Chief Engineer of Light and Power."

5585 Q. That means the city pumping station?

A. Yes, sir.

Q. What was the second letter?

A.—

"DEPARTMENT OF WATER SUPPLY, GAS AND ELECTRICITY.
CITY OF NEW YORK,
13-21 PARK ROW, *Dec.* 12, 1906.

Consolidated Gas Company, 4 Irving Place, City.

GENTLEMEN: On November 5th we wrote you in reference to poor pressure at the Pumping Station, 179th Street and Amsterdam Avenue, and requested you to correct same.

As we did not hear from you in reference to this complaint, we had one of our inspectors make an inspection on December 5th and he found that the trouble had not been remedied.

Will you kindly give this matter your immediate attention, and *notify us when corrected?* I am,

Very truly yours,
(Signed) C. F. LACOMBE,
Chief Engineer of Light and Power."

Q. Did you thereupon make investigations as to the pressure being maintained there?

A. I had investigation made.

Q. And did you have the pressure gauged?

A. I went up and looked over the ground myself, and had a record pressure gauge set.

Q. What was the pressure you found, thirteen tenths or one and three-tenths?

A. I found the pressure at the nearest street lamp was one and three-tenths inches.

5586 Q. Now, in reference to sheathing, Mr. Simpson; is it not true that sheathing is required to support the other structure in the street and the traffic passing as well as to maintain the material which you may put in?

A. Yes.

Q. Is it possible to get a trench absolutely level and at the same time solid enough to support your main at the outset without blocking or wedging?

The MASTER: Did he not testify pretty fully about that, Mr. Mathewson?

Mr. MATHEWSON: I don't know that he did exactly as to that.

The MASTER: I think Mr. Kirby put him through that pretty fully.

Mr. MATHEWSON: I was going to ask him if that would not require the excavation mathematically for the point required on the bell in each case, if he was to lay it flat on the earth, or else the pipe would rest on the bells at the ends and the rest of the pipe would not touch the earth.

Q. Is not that so?

A. Yes, sir.

Q. When you spoke about not leaving the foreman discretion in reference to blocking or wedging, will you explain a little further what you had in mind as to the cases which do not require, in your judgment, blocking and wedging? Are they many or few, and what have you in mind?

A. Well, I meant that in practically every instance that blocking and wedging was necessary; that it is possible that you might here and there in New York find a block or part of a block where the soil was so good and the conditions were so good that you might possibly get along without blocking, but it would not be advisable to leave it out, in my opinion.

Q. Would those instances be so few as to cut an insignificant figure in the total, or would they be large?

A. It would not make a difference in the total of $250—not $50 even.

5587 Q. In the whole system?

A. No.

Q. If you took the whole system of mains together, would it make a difference of more than $1,000?

A. No; it would not take off $50 from the $50,000 I allowed for blocking and wedging.

Q. In reference to the operation of this tamping bar and rammer, did I understand you to say that the rammer was only to be used on the top of the main, or is it to put down beside the main?

A. Not only on top, but beside the main.

Q. How much room is required to operate that in width of ditch?

A. You have got to have room enough for a man to stand and enough room to pass the head of the rammer down between the pipe and side of the trench.

Q. And as to the tamping iron?

A. The tamping iron would require about twice as much room to handle, or more than twice as much as the hammer, because it has to be held at an angle and used at an angle.

Q. How much in width would you say for an ordinary depth of trench, say three feet or four feet?

A. I should not think you could use a tamping bar to advantage in a ditch four feet deep without having at least eighteen-inch play room between the side of the pipe and the side of the trench on any pipe of any size.

Q. Take those few instances in which in your judgment it might be possible to lay the main without blocking and wedging, is not there danger there from subsequent construction which are coming in those streets and in leaving the main resting on earth without blocking?

A. No, sir. The blocking would not make any difference in that case at all.

Q. You stated you could not caulk gas mains too carefully
5588 for gas; as a matter of fact, compared with water mains, will not gas escape where water will not?

A. It will——

Q. And have you complaints as to gas odors and otherwise which escape from mains from time to time?

A. A great many of them.

Q. Have you noted within recent years complaints of the city officials as to the leakage of water being very great in New York City?

A. I have read a great deal of it.

Q. On the other hand, how does the leakage of the Consolidated Gas Company or unaccounted-for gas compare with other companies that you know of?

A. I think if not the smallest it is one of the smallest of any large city in the world.

Q. Do you remember that the unaccounted-for gas by the Exhibits was about 14 per cent. in 1884, and it has now been reduced to about 2 per cent.?

A. Yes, sir; about 2 per cent.

Q. And if by reason of insufficient caulking, gas was allowed to escape and the unaccounted-for gas increased, that would raise the cost of gas per thousand feet sold, would it not?

A. It would.

Mr. BURR: That is all speculation. I do not think it is proper rebuttal, Mr. Master.

Mr. MATHEWSON: I am asking questions on the line which you and Mr. Kirby did fully. You referred to water and gas mains, and I have shown the situation. Ours are good, and apparently the water mains are bad, according to the reports of your own officials.

Mr. KIRBY: You have not given the reason why.

Mr. MATHEWSON: I do not have to.

Q. In reference to the pipe used in Boston for water mains, Mr. Kirby read you some weights which were lighter than those used here?

A. Yes.

5589 Q. And you said that there were at least four weights used there?

A. Yes.

Q. How about the heavier weights, how do they compare with the weights of the Consolidated Gas Company?

A. They are far heavier than those we use.

Q. Is there any general rule which can be promulgated as to the weight of pipe required in the distribution system of a gas company without taking into account the local conditions as to traffic and other structures fully and all the details?

A. No, sir; none whatever.

Q. Do your pipes sometimes break even now with the weight which they have?

A. Very often.

Q. What would be the effect of lighter pipe in that regard?

A. We would have more broken than we have now.

Q. And the replacing of pipe in a situation of that sort would be a matter of large expense, would it not under the present pavements?

A. It would be very large.

Q. In reference to the rock at Sixty-third Street which you said was the only instance you recall where it was disposed of, that was taken out in excavation for a holder, was it not?

A. Yes, sir.

Q. In large blocks?

A. Large blocks. I may add that the man who bought the rock picked out such such pieces as suited him as to size and grain and so on.

Q. You also stated that when the subway was built and the trolley conduits were constructed, that the Consolidated Gas Company was paid the expense of moving mains or some expense for rearranging?

A. Yes, sir.

Q. Was not the company put to a good deal of expense in addition to anything that was paid by these subway or trolley companies?

A. It was, yes, sir.

5590 Q. In what lines?

A. We were only paid for any actual work performed. We were not paid one cent for the patrolling and watching of the work to see that they did not injure our system.

Q. And the inspection?

A. And the inspection.

Q. And the rearrangement of mains in your own records, to show the changed conditions, did they pay for that?

A. No, sir, did not pay for that at all.

Q. Your attention was called to the fact that one of the photographs which you have presented showed salt water mains in the middle of the street. Have you photographs that show that here?

A. Yes, sir.

Q. (Handing photograph.) Will you look at these two photographs and say whether they show that condition?

A. On Thirteenth Street, west of Third Avenue, the main is almost exactly in the centre of the street; in fact, it is exactly in the centre.

Mr. MATHEWSON: I offer that photograph in evidence.

Photograph received and marked Complainant's Exhibit 295.

The WITNESS: And this other one, Seventeenth Street, between Fifth and Sixth Avenues, the cut is also exactly in the middle of the street.

Mr. MATHEWSON: I offer that in evidence.

Photograph received in evidence and marked Complainant's Exhibit 296.

Q. It has been testified to by you that the edges of the pavement broke down where a ditch is temporarily covered and some time elapses between the closing of the ditch and the final repavement by the asphalt company of the city. As a matter of fact, in your computations, how much did you allow beyond the width of the trench on each side for repaving?

A. Three inches.

5591 Q. Is three inches the width which is actually repaved, or the minimum or maximum?

A. It is the minimum.

Q. Then the average in fact would be greater than that?

A. In nearly all cases it will run between four and six inches, some times as much as a foot on each side.

Q. Then your estimate is lower instead of above the average of your experience?

A. Yes, sir. One of these photographs shows five inches on one side and six on the other for the salt water main.

Q. Which is that?

A. That one there (indicating).

Q. That is Complainant's Exhibit 280?

A. Yes, sir. One side is five inch trim and the other side is six inch.

Q. Is it possible, Mr. Simpson, in your judgment for anyone to make an accurate or even approximately accurate estimate of the cost of installation of mains in the City of New York without a long and thorough study and exact knowledge of conditions still existing?

A. It is not any more than it would be possible for me to go to Boston or Chicago, or any place like that, and make an estimate there. I could not do that, and I would refuse to do it, unless I had gone into the thing very thoroughly.

Q. In spite of your wide experience generally?

A. In spite of my twenty-five years' experience in New York City.

Q. Mr. Burr has asked you with reference to the schedules, city's exhibits 92 and 103. In comparing them with the maps in reference to the mains you did compare, why didn't you endeavor to examine all of those 350 or 360 pages and compare them?

A. To start with, I knew that it was an absolute impossibility to get any correct data in the way Mr. Marks went at it; in the second place, the errors I found were so many and so glaring, and
5592 they were of so many varieties, that there was not time to take all the errors that were there. I took a few of each kind just as an example.

Q. In order to test the accuracy of the general work?

A. No, in order to prove that I was right and that they could not make those measurements. I knew it was not accurate before I started.

Q. In reference to these twenty-four or twenty-five miles which were omitted in one lump, were they active or disused mains?

A. Active.

Q. You have been asked in reference to services of the gas company where electricity is introduced to a building, and have stated that they were, as a rule, left. Why are they left?

A. Because they are in practically every case needed.

Q. Is the gas still connected with the house?

A. If not needed for illuminating purposes, in addition to the electricity, they will need it for fuel purposes, or heating purposes, gas ranges and so on.

Q. Now, you have the maps here which Professor Marks examined, have you not?

A. Yes.

Q. And are prepared to test the accuracy of any schedules which you presented?

A. Yes, sir.

Q. I will ask you to test one of them before the Master. Is that your sheet?

A. What one shall I take? Pick out one?

Q. Well, take this 5th Avenue one—no, take one later than that; take the one on Lenox Avenue, 115th to 110th Streets, which I have checked on this sheet.

A. Get me volume 8, Lenox Avenue, between 115th and what street?

Q. It is described there.

A. Lenox Avenue from the north property line of 115th Street to the south property line of 110th Street. Now, that reaches from the north property line of 115th Street to the south property line
of 110th Street. The south property line of 110th Street is
5593 here (indicating). The north property line of 115th Street is there (indicating), that is 24 14/16 inches.

Q. Twenty-four and seven-eighths?

A. Well, Mr. Marks gave it in sixteenths. The official measurement for that——

Mr. MARKS: What do you mean by the official measurement?

The WITNESS: On this card (indicating) the distance of streets and avenues and blocks and so on. From Ninety-sixth to 125th Street the blocks are 201 feet 10 inches long. There are five blocks, 1,009 feet 2 inches; there are five sixty-foot streets.

Q. Are there not six?

A. No; there is a 100-foot street coming. Five sixty-foot streets, that is 300 feet; there is one 100-foot street, 110th Street, so that the distance there officially is 1,409 feet 2 inches. 24 14/16 of the scale, I will take twice ten inches first for convenience sake; ten inches is 550 feet; twice 550 feet is 1,100 feet. Now, I have got 4 14/16 inches, that is 270 feet exactly; is it not, Professor?

Mr. MARKS: 267 or 268.

The WITNESS: Well, 267; I said 270, which makes 1,367 feet against the official scale of 1,409; that is the difference. Now, I want to call your attention, Mr. Mathewson—of course, that refers to the mains on that avenue, too, and on that avenue and that avenue (indicating).

Q. That is on Lenox, 7th and 5th?

A. Yes; it takes every avenue which is on that page, and I have only quoted one or given the exact figures.

Mr. BURR: Why is 5th Avenue given on that map?

The WITNESS: Does it make any difference if it is a
5594 straight line, whether I measure from this side of the page or from that side? Would it not come to the same thing? These lines are perfectly straight across here, and straight across there (indicating).

Q. Of course there might be a slight difference in measuring in this manner due to the personal equation, but not enough to affect the general proposition that the measurements are incorrect, is that right?

A. No. If you want to get it within the finest kind of point, you have to have a very bright light, and one man holding one end and another man the other.

Q. And that you have not here?

A. No; the light is not bright enough; it is very hard to read these sixteenths of an inch.

By Mr. BURR:

Q. While you have the map there, I understood you to say these maps were made by—what was his name?

A. Who drew the map?

Q. Yes.

A. Do you mean who drew the mains in?

Q. Yes; I asked you to give me the name of the man who drew the maps.

A. I gave you the name of the man who put the mains in.

Q. These are insurance maps?

A. Yes.

Q. These purport to be insurance maps of the City of New York

surveyed by Perris & Brown, 55 Liberty Street, 1889; that is right, is it not?

A. Yes, sir.

Q. And when you spoke of the gentleman under you having made these maps and having been engaged in making them, you simply referred to his placing on these maps the mains?

A. Yes, sir.

Q. And when you say that the paper shrank, therefore affecting the scale, if the paper is shrunk, it would affect the whole map, would it not?

A. What I meant was if the paper shrank this way——

5595 Mr. MATHEWSON: Say it shrunk lengthwise.

The WITNESS: If the paper shrunk lengthwise and the scale is running across the book, it would make a difference.

Q. Do you know in which way the paper has shrunk in any instance?

A. I have not any idea. It shrinks in the printing and in the backing.

By Mr. MATHEWSON:

Q. In some cases, Mr. Simpson, where these pasters are put on these maps by the makers of the maps, where the character of buildings changes, do not the pasters extend out over the mains?

A. Very often.

Q. So as to cut them off?

A. Yes, sir, very often.

Q. Have you, then, to redraw the mains?

A. Yes, sir.

Q. And on these very maps, are not there instances of that character where a main appears to be cut off by a paster, whereas a main actually exists there?

A. By looking over the volume you could find several instances, and I suppose, of course, as we come across them——

Mr. BURR: I think that should be stricken out. He said you could find by looking over the volume——

The WITNESS: Well, there are several instances.

Mr. BURR: Then say so.

The WITNESS: Well, there are several instances which you can find by looking through the volumes. Of course, it is our practice whenever we come across those to put the mains on again.

Mr. MATHEWSON: If you want to see one, I am told there is one on page 107 of Volume 6.

5596 Q. Now, Mr. Burr has drawn your attention to the fact that, taking Mr. Marks' figures as computed out, and adding to them the Bronx mains and the amount of the five maps omitted and the disused mains, Mr. Marks reaches a total of 804.99 miles, which is substantially the amount given as of a different date by the accountants Marwick, Mitchell & Company or Mr. Hall. Does the 804.99 take into account other errors which you have discovered,

even so far as you have examined and which appear in your comparisons of totals to which you have referred?

A. No, sir, it does not.

Q. So if there is any such correspondence as that it is a coincidence, isn't it?

A. Merely a coincidence.

Q. Is there any doubt from the figures, from your own information and records, that the amount of active mains of the company on October 31, 1905, actually amounted to the figure you have given, 795 and a fraction?

A. Not the slightest doubt.

Q. And if there appears more disused mains than the twenty-seven miles and a fraction which you gave, that would indicate merely, would it not, that some mains which were marked disused on the maps have since been abandoned, and have not yet been marked off?

A. Yes, sir.

Mr. MATHEWSON: That is all.

By Mr. BURR:

Q. I will ask a question which I should have asked before. I understood you to say, when Mr. Mathewson asked you as to what experience you had, and if you would rehearse that story again, that you took occasion to say that the mains from Astoria were now in successful operation—did I understand you correctly?

A. Yes.

Q. Will you tell me how they are being successfully op-
5597 erated to-day?

A. By conveying gas from Astoria to Ravenswood and through the tunnel to New York.

Q. Well, they are conveying gas from the first unit at Astoria?

A. Yes, sir.

Q. To where?

A. To Ravenswood in Long Island City.

Q. Through whose mains?

A. Through the sixty-inch main that I was talking about.

Q. Well, to whom does that belong, whose main is it?

A. Well, I suppose it belongs to the East River Gas Company of Long Island City.

Q. And where does that connect, at Ravenswood?

A. Yes, sir.

Q. With what main does it connect there?

A. It connects there with the works and the tunnel.

Q. And is that the East River Gas Company's main, too, in the tunnel?

A. Yes, sir.

Q. So that the Astoria plant is making gas and transferring it to the Borough of Manhattan through the sixty-inch main owned by the East River Gas Company at Ravenswood and extended through the tunnel under the East River?

A. I don't know that it is owned by the East River Gas Company;

it was laid by the East River Gas Company; that is one of the things I don't know.

Q. Where does it connect with the Consolidated in Manhattan?

Mr. MATHEWSON: That all appears in evidence, where the tunnel from Ravenswood connects with the Consolidated Gas Company.

Mr. BURR: This is something which has recently happened.

The MASTER: Do not discuss it at length, he may answer.

Q. Where does it connect?

A. At a great many points.

5598 Q. The main in the tunnel?

A. The main going through the tunnel connects with several mains of the Consolidated Gas Company in Manhattan.

Q. What are they?

Mr. MATHEWSON: Is it worth while going all over this? It was all asked on the direct. It is merely additional gas going through the tunnel which has recently been manufactured.

The WITNESS: It connects with a thirty inch main which connects with every gas plant or station of the Consolidated in Manhattan. It also connects——

Q. At what point does it connect with that main?

A. Seventy-first Street and Avenue A.

Q. With what other?

A. A twenty-four inch main going to the New Amsterdam Company.

Q. Where?

A. Fortieth Street and 1st Avenue. It also connects with a thirty-six inch main going across town belonging to the East River Gas Company.

Q. You are now receiving gas to-day in that way, are you, through those mains?

A. Yes, sir. I don't know that we are receiving any gas from Astoria through those mains; I don't know what is being done with it.

Q. Where do you think it comes from?

A. It might come from the Ravenswood plant; they have a big works there at Ravenswood, making twenty-five million a day.

Q. Then you don't know that the gas is coming from the Astoria plant?

A. I know that gas is going from the Astoria plant through that main.

Q. And you suspect it comes over by way of Ravenswood?

A. Yes, sir.

Q. Now, you say that the company seeks or is ambitious to reduce the size of its services?

A. No; it seeks to reduce the length of the services, but not the size.

5599 Q. I do not mean the number, but the extent, so far as length is concerned?

A. The length of it, it does.

Q. In other words, Mr. Mathewson called attention to the fact, as

he claimed, that if there was a single main in the street you would have to have longer services?

A. Yes, sir.

Q. And the idea of the company was that you should have shorter services; therefore you got as close to the curb as you possibly could?

A. Yes, sir.

Q. Have you not claimed that the reason that the company does that is because after the services are put in the services no longer belong to the company but belong to the owner of the real estate?

A. I never said so in my life.

Q. Did you not so testify in a tax proceeding?

A. No, sir; never.

Q. In an attempt to evade taxation, that the company should not be taxed for these services because after having been put in the building they belong to the owner and not to the company?

A. No, sir; never testified to anything of the kind.

Q. Did you ever hear of any one testifying to that effect for the company?

A. No, sir.

Q. You have said very frankly that you saw Dr. Marks undertake to make the measurements on these mains and you knew from the very beginning that he could not get any correct data, because of the manner in which he started o get the information that he thought the maps contained?

A. I knew he could not from the time he had.

Q. Oh, not from the method he pursued?

A. Yes, from the method he pursued, too; from the time and method.

Q. Did you call his attention to the incorrectness of the method he was pursuing?

A. I told Professor Marks that the maps were not drawn to scale in my office, and it was after a conversation of that kind
5600 I called his attention to several of that kind, and he said that he thought he could come within 5 per cent. of being correct.

Q. Didn't he tell you he was going to correct the scale?

A. He might have, but it would not make any difference.

Q. But you would not swear he did not tell you he was going to correct the scale as he went along?

A. I would not swear that he did not, and would not swear that he did.

Mr. MATHEWSON: He himself testified that he did not compare this scale with anything else, or correct it officially, or compare it with official scales—there is not much use of following this out. Look up his testimony. I asked him particularly about that, and he said no, he did not test this by official maps, the length or the scales.

Q. Is it not a fact that you used pebbles—or, I mean, cobble stones—instead of blocks to support your pipes?

A. I would like to catch any one of my men trying it; he would lose his job.

Q. What is the real object of putting the blocks in, so that they

can support the pipe, or is it to give a space there in which the caulking may be done?

A. No, it is to support the pipe and give the pipe a good firm bed to rest on.

Mr. BURR: That is all.

By Mr. KIRBY:

Q. Does the Consolidated Gas Company have any other main in which it carries a pressure approximately that of the main which we have been speaking about to-day?

A. No, sir; nor anywhere near approximating it.

5601 Q. What is the highest pressure you have in mind beside this one?

A. I should say the highest pressure we have on any other main—do you mean transfer or service main?

Q. Transfer main.

A. In a transfer main you might at some place near the station get to possibly nine or ten inches with an exhauster pushing it.

Q. You did not understand from Mr. Edgerton's testimony, did you, that he contemplated taking his services direct from this high pressure main?

A. No, I did not.

Q. In putting down these mains, that is, in digging your trench, how do you make room for your bell?

A. I allow room for the bell when I make my trench; I have room for the bell. If the trench is narrow at the bell I will widen it out.

Q. And what do you do at the bottom of the trench?

A. Open up for it.

Q. So that in no way does the pipe rest upon the bell itself?

A. No.

Q. And such blocks as you use are not laid in to support the pipe to a height that will take the weight off from the bell?

A. No.

Q. Your blocks are countersunk, are they not?

A. Yes, sir.

Q. And the bottom of the trench scooped out for that purpose?

A. Yes, sir.

Q. And your blocks rest upon the very ground which the pipe rests upon, do the- not?

A. Yes, sir.

Q. And you seek in every case to get as much of the pipe as possible upon the ground, do you not?

A. We do.

Q. You have said that you considered it inadvisable to use lighter pipe. Have you ever used any lighter pipe?

A. No, sir.

Q. You said the same would break before the other would break?

A. Yes.

5602 Q. Upon what do you base that conclusion if you have not used it?

—. Upon my knowledge of the conditions.

Q. I presume that you mean in regard to leaving services in the ground when the use of gas is either discontinued in whole or in part, that no change whatever is made, that the service r-mains there as it was formerly?

A. No, sir; all our services are renewed, all services that have gas in them are renewed when they show any signs of deterioration.

Q. But they are not if they are not changed?

A. No; except if it is necessary to change them on account of size or anything of that kind.

Q. You do not take out a large one and put a small one in its place?

A. No, sir; we never do that.

Mr. KIRBY: That is all.

By Mr. MATHEWSON:

Q. Assuming, Mr. Simpson, that gas is being made and sent out from Astoria, do you know of any way that the Consolidated Gas Company could get it to its mains in the City of New York, except by some temporary arrangement, of sending it round through the Ravenswood tunnel?

A. I know there is no other way.

Q. Pending the completion of the other tunnel direct from Astoria?

A. Yes, sir.

Mr. KIRBY: There is one other question I omitted.

By Mr. KIRBY:

Q. You have mentioned having taken pressure at a certain point in the city, where was that point?

A. I do not think I mentioned having taken pressure. I mentioned that I was familiar with pressures all over the city and have seen them taken.

5603 Mr. MATHEWSON: At the nearest lamp in reference to Mr. Macombe's complaint.

The WITNESS: I said I had the pressure taken there.

Q. You did not take the pressure there?

A. No; I had a *guage* set there.

Q. Did you set the *guage*?

A. No, I had set it by my orders, and the chart brought to me after twenty-four hours.

Q. Where did you have that placed?

A. The nearest lamp post to the pumping station.

Q. Where was that?

A. About forty feet west of the station.

Q. Where is the station?

A. One Hundred and Seventy-ninth Street and Amsterdam Avenue.

Q. What sort of a *guage* did you order set there?

A. Bristol Recording *Guage*.

Q. And how was it set?

A. I ordered them to set it on top of the lamp post. I ordered

them to test the *guage* with a water *guage*, and if it was correct to bring me the chart.

Q. You did not do any of the work yourself?

A. No, sir.

Q. Did not attach it?

A. No, sir.

Q. Or see it attached?

A. No. I went up and looked over the ground and saw the situation at the pumping station.

WILLIAM H. WHEELOCK, recalled in rebuttal, in behalf of the complainant, testified as follows:

Direct examination by Mr. MATHEWSON:

Q. Mr. Wheelock, have you read the testimony of Messrs. Thompson and McHale and Wells?

A. I have.

5604 Q. And you observed the valuations that they gave for the company's lands between Sixteenth and Twentieth Streets and west of Tenth Avenue?

A. I noticed them, yes.

Q. As it now exists after the city improvements?

A. I noticed them, yes; I don't remember them.

Q. It is the claim of the defendants that the company is entitled to include in its capital only the portion of the land which remains. Will you state whether you agree with the valuation of these gentlemen for the defendants, and if not, what valuation you placed on those blocks from 688 to 690, inclusive, being shown on page 3 of Exhibit 48?

Mr. BURR: Let me understand. Is this what he has already testified about?

Mr. MATHEWSON: No, he has not testified. He is simply rebutting the values he gave to that particular property. We showed the value of the property as a whole, and you claimed we should be entitled to include in our capital only the portions which are left, and I am now asking whether he agrees to the testimony of your witnesses as to the value of what is left, and if not, what his valuations for those parts are.

The WITNESS: Beginning with block 688, do you want me to state what my total was before?

Q. Yes.

A. Block 688, I gave a value of $844,000.

Mr. BURR: Your first valuation was $844,000?

The WITNESS: Yes. That was prior to the taking by the city. Now, the remaining portion is $400,000.

Q. Block 689?

A. I testified to a value of $808,500 and as the block stands at present my valuation is $471,500. Shall I go on?

Q. Yes.

5605 A. Block 690, I testified to a valuation of $453,500. As the block stands at present, my value is $483,000, an increase of $29,500.

Q. That is on account of the marginal streets now making a street frontage, where originally there were interior lots?

A. Yes. Block 691, my valuation before was $340,000. As the block is at present my valuation is $186,500.

Q. Those are all the blocks which are affected by the improvement there?

A. Yes.

Q. And the difference is how much, between the valuations?

A. The net difference is $1,392,500.

Q. And if you deduct that from your original total of $15,499,500 that would leave a net now of how much?

A. $14,107,000.

Q. And in getting this difference of $1,392,500, do you not take into consideration that block—what are those which were taken out entirely?

A. Well, the two blocks that were taken out entirely were number —I don't believe I have the numbers here, but the blocks between Eleventh and Thirteenth Avenues.

Q. Those two small triangular blocks?

A. Yes, and from Sixteenth to Eighteenth Streets.

Q. And you wipe those valuations out entirely?

A. Yes, sir.

Q. Your original valuations were $127,500 for one of the blocks and $63,000 for the other block?

A. Yes.

Q. And $297,000 for the bulkheads?

A. That is right.

Q. And those three blocks you count as zero?

A. Yes.

Q. And the net difference of all the property which you have now mentioned as originally valued by you, including lots and bulkheads, was greater than your present valuation of the same by $1,392,500?

A. Yes, $1,392,500.

5606 Q. The witnesses for the defendant had their attention called to an award of $900 per front foot for bulkhead at Twenty-second Street, but stated that they could not find that any award had been made, that being the figure to which Mr. Greene testified. Do you know whether that award was actually made?

A. Yes. I know that it was made, and that the money has been paid to the original owners of the property. The award was confirmed on April 27th, 1906, and the total of that award was $45,600. It covered eighty feet eight inches of the bulkhead running northward from Twenty-second Street, and the owner of it, to whom the money was paid, was Francis L. Ogden.

Q. Now, on page 2775 of his testimony, in regard to block 716, lot 14, Mr. Thompson put no value on building. Aren't the buildings there of value in your judgment?

A. That is on what page of exhibit 48?

Q. On page 3. It is the stables on the north side of West Eighteenth Street.

A. I put a value on those buildings of $4,000.

Q. Do you find that Mr. Thompson, in his estimate of value, if Twelfth Avenue be excluded from the company's property at the Forty-second Street plant and at the Forty-fourth Street plant, allows any corner values?

A. I could not find that he did.

Q. What would be your judgment as to an estimate if you assumed Twelfth Avenue to be excluded as to whether corner values should be allowed?

A. If Twelfth Avenue be excluded it means it is a north and south through traffic street, at least, to a certain extent, and that property facing on that street should have a value and that corners should be figured in the same way that corners are on other streets, which I figure at 60 per cent. over interior lots, and in some cases 100 per cent., but in that case 60 per cent.

5607 Q. As to Shadyside, the New Jersey property, Mr. McHale, at page 2,871, gave a certain valuation?

A. Yes.

Q. Will you state whether that is the valuation which is correct in your judgment, and, if not, what you would base your criticism on?

A. I would put a value on that property of $300,000. I was influenced somewhat by prices paid in the neighborhood that I could find out, and I took into consideration the price paid by Batterson & Eisele for the marble works just north of this property, where $120 per running foot was paid for only meadow land. I was also influenced by the fact that the railroad paid in condemnation proceedings $1,200 per lot, 25 x 100 feet, and also by the fact that the next lot north of the Batterson & Eisele marble yard, so far as I can learn, cannot be bought for $140 a running foot.

Q. What would that indicate as to Mr. McHale's valuation?

A. That, in my judgment, they are too low.

Q. On page 2,885 Mr. McHale was unable to give information as to the rent received by the city for 187 feet between 109th and 110th Streets. Can you tell what that is?

A. I think I have a record of it. The city rented to Burke & Meyer 187 feet between 109th and 110th Streets at $1,800 a year; that is, at the rate of 4 per cent. on a capital value of $45,000, or at the rate of $240 a front foot of bulkhead.

Q. Assuming that the company were to be excluded from 12th Avenue, that is the Forty-second and Forty-fourth Street plant, I want to ask you whether, in your judgment, they could obtain contig-ous or neighboring property of a similar extent for less than the valuation that you placed on the property included in 12th Avenue?

Mr. BURR: I object to that as immaterial, incompetent and irrelevant.

5608 Mr. MATHEWSON: No, the cases say that the cost of replacing is an element, almost a controlling element.

The MASTER: I do not exactly see how that comes under the head of rebuttal, Mr. Mathewson.

Mr. MATHEWSON: In this way: We are using 12th Avenue, it is conceded, and the valuation given by our witness was including 12th Avenue. Now, the defendants say you may be excluded from 12th Avenue; it is a public street. If we are excluded from 12th Avenue then we have got to get land somewhere else to use. In other words, the amount of land we require for use in our gas business. And the question is whether we could replace it elsewhere or whether the value of the land required in our gas business would be any less if we were excluded from that land, and the cases as I understand them hold that it is entirely pertinent and valuable to inquire whether the company could acquire its land, replace its land for any less than the valuation placed on the land. In other words, they desire to exclude us from 12th Avenue. If they do, we must have other land. Can we get it for any less valuation than the valuation which Mr. Wheelock placed on the 12th Avenue property?

Mr. BURR: The only question here is what was the value of the land which you claim to own. Now, the valuation was placed upon all this land by Mr. Wheelock in the beginning, and then valuations were placed on the same land by Messrs. Thompson, McHale and Wells. Now, Mr. Wheelock is called to rebut if he can, any statement that they made in regard to the value of any particular
5609 piece of property. Strictly speaking, this is not rebuttal at all; it is going over his testimony in a great degree.

Mr. MATHEWSON: Not at all.

Mr. BURR: With regard to the changed conditions——

The MASTER: Did this exclusion of 12th Avenue originate with the defendant's witness?

Mr. MATHEWSON: They asserted and claimed and put in maps showing that we cannot use that property and can be excluded at any time.

The MASTER: Not with the real estate experts, but other evidence offered on behalf of the defendant?

Mr. MATHEWSON: Yes, since our people testified; and they have advanced this and called Mr. Wells and shown our water rights and claimed that we were squatters and cannot use that land. If we cannot, we are entitled to have other property, and if we are excluded from that, according to their contention, my question is whether we could acquire a similar amount of land to use in this city for less than the valuation he placed upon the land from which we are excluded?

Mr. KIRBY: No facts have been brought forth which were not known before the complainant closed their testimony in this action.

Mr. MATHEWSON: We did not know you would make that claim.

Mr. KIRBY: You knew what the conditions were?

The MASTER: I will allow it.

Mr. BURR: Exception.

Mr. KIRBY: Exception.

A. I do not think you could replace the land for anything like the figures I have placed upon it.

5610 Q. I will ask you the same question in reference to the property shown on page 2 of Exhibit 48, being block 991.

lots 1 and 26, that is the two lots between Avenue D and Tompkins Street, and the northeasterly one-half measured diagonally of block 89, lot 26; whether, if the company is excluded from that property, it can in your judgment acquire other property contiguous or in that vicinity for anything less than the valuation you placed upon the property from which they would be excluded?

Mr. BURR: Same objection as before.
Mr. KIRBY: Same objection.
The MASTER: Same ruling.
Mr. KIRBY: Exception.
Mr. BURR: Exception.

A. I do not believe they could, I am positive they could not.

Q. Referring to block 642, lots 32 and 33 at the northwest corner of Third Avenue and 114th Street, Mr. Wells testified that he did not consider that the value of that plot was increased by the fact that it faced both on Third Avenue and on the side street; in other words, the L-shaped plot. What would be your view as to that?

A. I think there is hardly a case where property fails to enhance in value where it has an L either on a street or an avenue. There are cases where the enhancement of value is much greater owing to the improvement of the street or avenue, but as a general proposition it increases the value of the plot.

Q. Is there anything which indicates to you that this would be any exception?

A. No.

Mr. BURR: I want to say here, if you are going to pursue this much longer, this is not rebuttal——

Mr. MATHEWSON: I am all through.

5611 Mr. BURR: He calls witnesses to testify to the value of land and give their reasons, and they are cross-examined as to why they give certain valuations. Our witnesses are called and they are cross-examined as to the justness of their values——

The MASTER: But he says he is through with this now.

Mr. BURR: If he is through he is through.

Q. In the course of my examination of Mr. Wells I asked if he was familiar with the sale at 166 East 114th Street, a lot 16 feet 8 inches by 100 feet, with a building worth about $2,000 and land $6,500, sold in 1902 for $8,500, or at the rate of $12,000 for a full lot. He replied that he had no record of such a sale. Are you able to say whether there is a record of such a sale?

A. I found it in the *Record and Guide*.

Q. And the same as to Mr. Thompson. I asked him at page 2,748 whether he knew of a sale of 2089 Third Avenue in 1900 for $45,000, and he said he could find no record.

A. That is also in the *Record and Guide*.

Q. I also asked Mr. Thompson on the same page with reference to the sale of 2091 Third Avenue, 25 by 100 feet, sold in 1901, at $31,000, and he could find no record of it. Is there such a record?

A. There is in the *Record and Guide*.

—. I also asked Mr. Thompson at page 2752 with reference to the

record of a sale of 126 East Seventeenth Street and 128 East Seventeenth Street, the first 25 feet 6 inches by 100 and the next 24 feet 9 inches by 100, the first sale being for $40,000 and the second for $50,000, the buildings in each case worth about $5,000, sold to the city in 1906, and he knew of no such record. Is there a record of such a sale?

A. There is in the *City Record* of June 27th, 1906.

Q. To whom?

A. To the City of New York.

5612 Mr. BURR: What was the date?

The WITNESS: The record of June 27th 1906.

Q. I also asked Mr. Thompson, at page 2754, as to a sale at 174 Hester Street, between Mulberry and Mott, 25 x 100 feet, with old three-story buildings of no value, selling in 1905 at $26,500. No record was found by Mr. Thompson?

A. It is also found in the *Record and Guide.*

Q. I likewise asked Mr. Wells in reference to the record of a sale of No. 518-524 East Sixteenth Street, between Avenues A and B, 75 feet by 103 feet, with four old buildings, sold in 1906, at about $50,000; buildings worth about $3,000 each, and Mr. Wells stated that he found no record. Do you find such a record?

A. I have such a record. It did not come from the *Record and Guide*, however, I know it to be a fact that the price quoted of $50,000 is correct.

Q. That would leave about $38,000 for the land, or $7,250 a lot?

A. Roughly, yes.

Q. I also asked Mr. Thompson, at page 2758, as to the record of a sale of 606 East Fifteenth Street, between Avenues B and C, 25 x 100 feet, with an old four-story tenement.

A. Yes, I have that.

Q. For $11,500, building about $2,500?

A. Yes, roughly.

Q. And so, too, as to 606 East Fourteenth Street, between Avenues B and C, a lot 25 x 100 feet, sold at $15,825 in 1904. Mr. Thompson was unable, at page 2760-1 to inform me as to that. Is there a record of such a sale?

A. There is, in the *Record and Guide.*

Q. And the value of the building in that case is about $4,000?

A. Yes, sir, roughly.

Q. Now, at page 2771, I asked in reference to a sale of 455 West Sixteenth Street, between Ninth and Tenth Avenues, lot 25 x 92 feet, with two-story frame building of no value, which was sold in June, 1906, and he could not give the price. Are you able to state or have you found a record?

5613 A. I know that the price was $13,250. It does not appear in the *Record and Guide.*

Q. Now, I asked Mr. Wells, at pages 4319-20, as to a sale of 436-438 East Nineteenth Street, between First Avenue and Avenue A, 50 x 92 feet, vacant, sold in 1904 at $16,100, and Mr. Wells could find no record of it?

A. It is in the *Record and Guide.*

Q. So, too, on page 2794, I asked Mr. Thompson in reference to

537-9 West Fortieth Street, between Tenth and Eleventh Avenues, a lot 50 feet wide by half the block, with one story sheds of no value, selling in 1901 at $16,000. Mr. Thompson had no record. Is there such a sale?

A. It is in the *Record and Guide*, yes.

Q. At page 4329, I inquired of Mr. Wells as to a sale of lots 1617 and 1619-1621 Eleventh Avenue, between Forty-fifth and Forty-sixth Street, 75 x 100 feet, vacant, sold in 1906 at $37,000. Mr. Wells had no record. Do you find a record of such a sale?

A. There was a nominal consideration given in the *Record and Guide*, but I know that the price was as stated, $37,000.

Q. Now, I also inquired of Mr. Wells and of Mr. Thompson in reference to 1108 First Avenue, Mr. Wells at page 4320, and Mr. Thompson at page 2798, the sale being between Sixtieth and Sixty-first Street, 25 x 100 feet, with a one-story shed of no value, selling at $10,000 in 1905. Mr. Wells had no record and Mr. Thompson was not able to state the price of the sale.

A. It is in the *Record and Guide*.

Q. As stated, at $10,000?

A. Yes, as stated at $10,000.

Q. I called Mr. Thompson's attention to a sale on Sixty-sixth Street, north side, fifty feet east of the railroad tracks, 40 x 100 feet, sold in 1906, at $13,000, vacant, at the rate of $8,100 per lot, and Mr. Thompson, at page 2800, stated that he had no
5614 record, and Mr. Wells, at page 4333 had no record. Do you find that recorded?

A. There is no consideration given. I was mixed up on that sale, but I know that the price was as stated.

Q. I also inquired of Mr. Thompson, at page 2801, in reference to the sale of 227-231 East Ninety-eighth Street, between Third and Second Avenues, 75 x 100 feet, sheds of no value, sold in 1905 at $40,000, or at the rate of $12,500 per full lot, and Mr. Thompson stated that he had no record and Mr. Wells, at page 4336 similarly stated. Is there a record?

A. It is not a *Record and Guide* quotation. The Title Guarantee and Trust Company, who drew the deed and searched the title, gave me the price.

Q. As stated?

A. As stated.

Q. Also at page 4339 I called Mr. Wells' attention to 308-322 East 110th Street, west of First Avenue, opposite the gas company's property, with sheds of no value, sold in 1905, at $74,550, or at the rate of $10,650 per lot. Mr. Wells, at page 4339, stated that he had no record of that.

A. I don't know whether that is a *Record and Guide* sale or not. We were half brokers in that, and the price is as stated.

Q. I also, at page 4340, inquired of Mr. Wells as to a sale between Broadway and Twelfth Avenue, south side of 137th Street, vacant, in 1904, for $50,000, or at the rate $8,800 per lot, and Mr. Wells had no record. Do you find any record?

A. It comes from the *Record and Guide*.

Q. Did you observe the method pursued by Mr. Wells and Mr.

Thompson and Mr. McHale in reference to plottage, stating that they included the plottage in individual lots without figuring first the value of a parcel on the ordinary basis, and then adding a percentage for plottage?

A. Yes.

Q. You have read that?

A. I have read that testimony.

Q. In your judgment is that a proper or approved method
5615 of estimating the value of a plot, including plottage, a large block?

A. I can only say that it is my custom and also the custom of our office, and in a great many other cases I have heard of, to take a unit value and plottage in those cases is added after, as a last final touch to the figure.

Q. Are you familiar with such a method as was employed by these gentlemen?

A. No, personally, not.

Q. Has the individual lot itself any plottage value?

A. No, I cannot see that it would have.

Q. Now, the defendant's witnesses, one of them testified as to the sale of the bulkhead property to Dugro above Forty-ninth Street; are you able to find any record of that sale?

A. I find no record in my office. I have also applied to the people who attend to Judge Dugro's real estate work, as a rule, I don't know as they would in this case, and I cannot find any record of this, and neither has the Lawyers' Title Company, nor the Title Guarantee Company.

Q. You have made investigations and inquiries so far as you could and could not find it?

A. I would not say so, so far as I could, but where I usually go to get records, and they have not it.

Q. Assuming that a sale was made without any additional or unexpressed consideration at the figure suggested, would a single sale of that character in view of the other sales and leases with which you are familiar and to which you testified, be a true criterion to the value of bulkheads?

A. I can only answer in this way, that finding the sales and leases which I did, if I came across a sale of this kind at the price given I would have to know all about it before it would influence me, because it is very much below anything that I could find.

Mr. MATHEWSON: That is all.

Cross-examination by Mr. BURR:

Q. Mr. Wheelock, you know Messrs. Thompson and McHale, I suppose?

5616 A. I have met Mr. McHale in connection with Columbia College work some years ago, and Mr. Thompson I saw here for the first time when he testified.

Q. Do you know them in the real estate business; do you know Mr. McHale?

A. Yes, sir.

Q. And you know his connections and associations in the real estate business?

A. Yes.

Q. Do you think he is a competent real estate expert?

A. He is so thought.

Q. I suppose your attention was specially directed to their testimony by counsel for the complainant, after they had testified?

A. I heard some of Mr. Thompson's testimony and the rest I read.

Q. Read for any special purpose?

A. To acquaint myself with it.

Q. In other words, you were notified that you might be called upon to rebut their testimony?

A. Yes.

Q. And with that in view you familiarized yourself with all they had said in regard to this property?

A. Yes.

Q. And with regard to these sales that Mr. Mathewson has called your attention to, you hunted up the records as far as you could and you found these in the *Record and Guide,* that you have spoken of being in the *Record and Guide?*

A. Yes, prior to my own examination here before you.

Q. There are some, I understand you to say, you did not know about yourself?

A. No.

Q. Now, were they in the *Record and Guide?*

—. I said there were some not in the *Record and Guide,* but which I myself personally or my office did know about.

Q. Which are those?

A. The first one I testified to this afternoon, I think, was 518-24 East Sixteenth Street, the next one 445 West Sixteenth Street. The next was 550 West Fortieth Street. I think I testified to that
5617 one. The next was Sixty-sixth Street, on the north side, fifty feet east of the railroad track. The next 227-231 East Ninety-eighth Street. I think that is all. There may be one more, but I did not find it. The rest were all *Record and Guide* sales.

Q. Well, I understood you to say that you knew that $1,800 was the rent received by the City——

A. Oh, well, that is a lease.

Q. For 187 feet between 109th and 110th Streets?

A. Yes.

Q. Do you mean to say you know that of your own knowledge?

A. Neither of the tenants told me so; I find a record of it.

Mr. MATHEWSON: Where do you find a record of it?

The WITNESS: In the Dock Department's books; I cannot give you the page.

Q. Do you know what were the conditions of that lease?

A. No.

Mr. BURR: I move to strike out the testimony in regard to that.

The WITNESS: I only know it was a two-year lease at $1,800 a year.

Mr. BURR: The witness testified with regard to 187 feet between

109th and 110th Streets as to the rent received by the city. It now appears that that is in the shape of a lease, and I asked him if he knew the conditions which were stated in that lease and he states that he is entirely unfamiliar with the conditions, and all he knows is the amount, and I move to strike out his testimony in that regard.

Mr. MATHEWSON: No, he said he knew it was $1,800 a year for a two years' lease, and he found the record in the Dock De-
5618 partment Records of the City of New York.

Mr. BURR: If he is going to testify about that at all, it is not within his own knowledge and he cannot speak except as to the amount, and there being a written lease, the lease is the best evidence, and I move to strike it out.

Mr. MATHEWSON: You produced your own Dock Department records and proceeded to testify as to leases from those very books, and your witness, McHale, testified he could not find the record of such a thing, and that he did not know the rent received, and I asked him if he knew the recent received and he said he did, and he found it in your own books.

Q. Do the terms and conditions appear in the books which you looked at?

A. No, simply the term of the lease and the amount of the lease and the name of the tenant and dimensions of the property.

Q. Did you say you got that from a book or from one of the tenants?

A. I say I did not get it from either of the tenants. I got it from the Dock Department Records.

Mr. BURR: I move to strike out his testimony, the lease being the best evidence, and containing the terms and conditions under which the rate of rental is fixed.

The MASTER: I will let it stand. Of course, the lease would be the best evidence, no doubt about that.

Mr. BURR: Give me an exception.

Q. Now, these various parcels which you have described as not being in the *Record and Guide*, but of which you had knowledge, what kind of knowledge did you have?

A. In some instances, either I myself, or my office acted
5619 as broker or part broker.

Q. Which ones did you act as broker?

—. I have given them already in the testimony.

Q. 518 East Eighteenth Street, did your firm act as broker there?

A. What number is that?

Q. 518, 520, 522 East Eighteenth Street?

A. We were interested in that sale.

Q. Well, interested in knowing that it went through? or how? Or in knowing the price?

A. Knowing the price.

Q. I assume you are interested in all sales in knowing the price. Did you have any special interest in this?

A. Largely where we are paid for putting them through.

By Mr. KIRBY:

Q. How were you interested in this case?
A. Being paid a commission for putting it through.

By Mr. BURR:

Q. You helped put it through and you were paid for acting as broker?
A. Yes, sir.
Q. Does that apply to 445 West Sixteenth Street?
A. No, I don't think we had anything to do with that sale.
Q. How do you know what the consideration was in that sale?
A. My knowledge of that sale and several that are here comes from the company with which we are connected. We have records of the contracts that are closed in that office, that is the Title Guarantee and Trust Company, where the contracts are drawn by them and where we have access to those contracts.
Q. Do you mean to say there is a written contract in existence?
A. On file, yes, sir. The title has gone through long ago, but the copy of the contract is there or the original, as the case may be.
5620 Q. Did you see the original contract there?
A. I did not, no.

Mr. BURR: I move to strike out his testimony as to that.

Mr. MATHEWSON: Real estate experts qualified here by asking them whether they are familiar with the sales through their own offices, by examination of the *Record and Guide* and other sources of information, and they always qualify by showing such general familiarity. The defendant's witnesses testified as to the same things, and here is the *Record and Guide,* which is testified as being the established record to which real estate men have recourse, repeatedly quoted by the defendant's witnesses on the stand as to what they found, and any sources of substantial inquiry, recognized sources of inquiry and pertinent in a case of this kind. What weight is to be given to them is another proposition, and I submit that the motion to strike out should not be granted. For whatever they are worth, they are here and they are the recognized and only way in which you can reach a valuation.

The MASTER: It would seem proper to me, I think that motion will have to be granted.

Mr. MATHEWSON: Exception.

Q. Now, as to the Sixty-sixth Street piece of property, how did you obtain your information there? Were you a broker there?
A. We were part broker in that sale and received a share of the commission.
Q. Did you assist in the negotiations looking to the sale?
A. Yes.
Q. Did you assist at the close of the sale?
A. I don't remember whether our office was represented at the passing of title. We certainly negotiated the drawing of
5621 contracts and exchanging of them and signing of them. We rarely attended to the passing of title.

Q. What kind of property was that?
A. Vacant property.
Q. Can you produce the contract?
A. No, we do not keep any contract. We are only brokers.
Q. Well, will you produce the contract?
A. Only with the permission of the buyer and seller.

Mr. BURR: I move to strike out his testimony with regard to that property also.

Motion denied. Exception.

Mr. KIRBY: The State also excepts.

Q. Now, as to 550 West Fortieth Street?

A. I think we have no interest in that. I do not think we have any interest in that.

Q. What is the source of your information there?

A. Title Company again.

Q. You were informed by someone in the Title Company that such and such an amount was paid?

A. I would like to say that we get a great many figures from the Title Company in this way: That Mr. Charles S. Brown, my senior, is President of the Bond and Mortgage Company, a subsidiary company of the Title Guarantee & Trust Company, and that he passes on all the loans made by the Title Guarantee & Trust Company of property which is closed in their office, and that large lists of sales are submitted to him every week, with lots of plots or single properties mentioned, the prices at which they are being sold for the mortgage which is wanted by the person buying, and although the statements that come to us from the Title Guarantee & Trust Company are not sworn to, we take them as being correct authority for it, for we have found that in a large number of cases the
5622 prices shown on that list are accurate. The values we suppose are just as accurate as those we happen to know about.

Q. But the terms and conditions under which a piece of property is bought——

A. We know nothing as to terms or conditions governing the sale of the property.

Q. But that has a great deal to do with the sale, the terms and conditions existing?

A. There are a great many sales where a special feature or special condition will cause the price to be high or low.

Q. You would not venture an opinion upon a piece of property, would you, unless you knew all about it?

A. Certainly I would. I would know whether the price paid was fair. The *Record and Guide* sales usually show the prices paid.

Q. You would not venture an opinion upon property unless you knew all about the property?

A. No.

Q. And if your attention was called to a sale of property in that neighborhood or thereabout to affect your judgment, you would want to know all about that sale, wouldn't you?

A. I should if it differed very much from the values which I believed to rule.

Q. And as a matter of fact, you do not know anything about the terms and condition of this sale other than the price?
A. No, I do not.

Mr. BURR: I move to strike out his testimony with regard to that piece of property.
Motion granted. Exception to Complainant.

By Mr. MATHEWSON:

Q. Is this one where you have the record in your office?
A. No, this is not, except as it comes from the Title Guarantee & Trust Company for the purposes of mortgage. It is a statement made by the Title Guarantee & Trust Company of the price paid.

5623 Mr. MATHEWSON: Exception.

By Mr. BURR:

Q. Now, take 227 and 231 East Ninety-eighth Street. Did you act as broker there yourself?
A. No.
Q. You did not have that sale?
A. No, not personally.
Q. Where did you get your information?
A. I will tell you in just one minute.
Q. Is that 227 to 231?
A. Yes. That comes partly through the Title Guarantee & Trust Company and partly through the broker who did make the sale.

Mr. BURR: It was hearsay, and I move to strike it out.

By Mr. MATHEWSON:

Q. Was that according to the *Record and Guide?*
A. No, sir.

The MASTER: Strike it out.
Mr. MATHEWSON: Exception.

Q. As to all the pieces of property which Mr. Mathewson claimed he cited as comparisons to the experts for the State and City, you obtained your information regarding those from the *Record and Guide,* if I understand you correctly?
A. I did, yes, sir.
Q. And you know nothing at all about those pieces of property except the consideration as it appears in the *Record and Guide?*
A. I don't think there is a single one where I know anything about the conditions governing the sale.

Mr. BURR: I move to strike out his testimony with regard to those.
5624 Mr. MATHEWSON: May I ask a question or two of the witness?
The MASTER: Yes.

By Mr. MATHEWSON:

Q. Is the *Record and Guide* the recognized organ of real estate transactions in the City of New York?

A. Yes.

Q. Is it constantly consulted and relied upon by brokers and real estate dealers with regard to property sold and prices received?

A. Yes, sir.

Q. Is it the same record to which you and the witnesses for the defendant referred as the *Record and Guide* when they mentioned it?

A. Yes, sir.

Mr. MATHEWSON: If the Master please, the question is put to the witness——

The MASTER: You need not argue. Motion denied.

Mr. BURR: Exception.

Mr. KIRBY: Also objected to as not rebuttal, and I except.

Q. You say Batterson & Eisele, the marble works there, paid $120 per running foot there for meadow land at Shadyside?

A. Yes, sir.

Q. Where did you get that information?

A. That is indirect information from the broker who made the sale; also a record of it in the Jersey office, which I have not myself seen.

By Mr. MATHEWSON:

Q. What Jersey office—of your firm?

A. No, I mean in the record office. I have not seen that. I have a record of the page——

By Mr. BURR:

Q. So you know nothing about it as to the terms and con-
5625 ditions except you were informed by the broker who made the sale?

A. That is all. That also applies to the condemnation proceeding; there is a public statement of the price paid, which I have not seen.

Mr. BURR: I move to strike out that testimony.

The MASTER: I cannot tell about that unless I see exactly what they say about it.

Mr. BURR: You mean in regard to Shadyside.

The MASTER: Yes. My copy of the testimony is at the binder's. I will let it stand for the present and you can make another motion in a brief or at the close of this matter when I get the record here in this case back. I do not recall what those gentlemen said or what investigation they had made as to their sales, or what knowledge they had of sales in connection with the Shadyside property. If their testimony as a whole was to the effect that they did not know of any other sales over there, and Mr. Wheelock testifies here that the sales are a matter of record, I would be disposed to let it stand.

Q. Did you find that Shadyside sale to Batterson & Eisele before you testified here that first time?

A. Yes, I did.

Q. Do you know where Batterson & Eisele are now? They are located in that neighborhood, I mean?

A. Yes; they are approximately—well, as near as you can judge by land over there, I should say three long blocks north along the river front—as well as you can divide into blocks out there.

Q. They have a plant right there?

A. Yes. Marble works.

Q. This is rather an extension of the existing plant?

A. I judge not. I judge that—yes, I think it is. The
5626 buildings which they have there are much older than the sale recorded.

Q. Now, as to the condemnation proceedings which you said you had received information from other people, what information did you receive in regard to them?

A. The Standard Oil Company property over there, and part of that was taken by the railroad; and also——

Q. That is, you were informed?

A. This I know to be a fact, that it was taken. I also know that two other strips of property were taken there. I don't know whom they belonged to. I was told of that. I can say the strips were taken, however, and the record shows it, which I have not seen, but which I am told brought $1,200 a lot.

By Mr. MATHEWSON:

Q. You mean the record in the public office?

A. Yes.

By Mr. BURR:

Q. You did not see the public record, but you were told that was the price paid?

A. Yes.

Q. How recently were you there?

A. I should say about three weeks before I first testified, roughly; that was the time I was over there.

Q. And by whom were you informed?

A. By one of the commission who acted as part broker in the sale of part of the land and acted as expert in this proceeding.

Q. But that is the sole information you have?

A. That is the only information I have.

Mr. BURR: I move to strike out his testimony with regard to that.

The MASTER: I make the same disposition as to that. I
5627 will let it stand for the present until I look at the record in this case.

Exception.

Q. Now, you gave a valuation of $4,000 for cer-ain buildings that Mr. Thompson would not put any valuation on at all. Why did you value them at $4,000.

A. Because, in my opinion, they were buildings that were useable, rentable, suitable to the neighborhood that the owners if they did not choose to use them could rent them. I think that was in Eighteenth Street, north side, if I remember rightly, wasn't it?

Q. Yes. Do you know if there is any basement to that building?
A. I don't think there is in either of the buildings there.
Q. Do you know if there is any roof on it?
A. Yes, I know there is a roof on both. There was when I was there. I don't know that there is to-day.
Q. When were you there?
A. During the month prior to my first testimony.
Q. What is it used for?
A. Building on the east side, two-story brick stable, 20 x 92—12 stalls on ground floor, hay above. On the west side, two-story brick building in front on the street used as a garage, size approximately 25 x 28. Second floor used for living rooms of the firm. In the rear of this are sheds of frame, and tar roof.
Q. Have you just merely put a valuation on the brick and mortar that constitutes the buildings or have you put a valuation considering the business they are adapted for and the probable amount they earned?
A. The latter is the basis on which I figured them.
Q. What would stalls rent for in that neighborhood?
A. I should suppose——
Q. No, do you know?
A. No, I don't know.
5628 Q. You never rented a stall or stable over there in that neighborhood, did you?
A. I think not.
Q. Are you quite sure?
A. Positive.

Mr. BURR: I move to strike out his testimony with regard to that. Motion denied. Exception.

Q. With regard to this Francis L. Ogden award, you say there was a bulkhead 80 feet 6 inches which on April 27, 1906, was paid for at the rate of $900 per foot, making a total of $45,600?
A. I believe that was the total, yes.
Q. Will you figure up 80 feet 6 inches at $900 per foot? Have you got your dimensions correct?
A. Well, I thought I had. I copied it from my map, but very possibly I am in error. That does not multiply up straight.
—. How much does it amount to?
A. The award was on the basis of $900. My multiplication is wrong. I would like a chance to correct that from my own record- in my office. I have not got them here.
Q. I won't pursue that, with that understanding, that you may have an opportunity to get the correct figures. Now take Block 688. You say that you valued it as it was at $844,000 and as it is at $400,000. Will you give us the basis of this later valuation?
A. That is the most southerly block.
Q. Well, whatever you have it there?
A. 688?
Q. Yes.
A. The length of that block on West Sixteenth Street is 286.21

feet, according to this description. On the marginal street it is 195 feet. On Seventeenth Street I make it 357.29 feet and on Tenth Avenue 184 feet. I take a unit of value for the marginal street of $15,000, for Sixteenth Street of $11,500, for Seventeenth Street of $11,000, for Tenth Avenue $15,000. On the marginal street, the junction of the marginal street and Sixteenth Street I divide
5629 it into a corner 25 x 100, which at a price of $15,000, plus 50 per cent. for the corner, makes $22,500. I add for extra depth $562, or a total of $23,062.

The interior lot remaining upon the marginal street being 72 feet 6 inches by 100 feet I value at the basis of $15,000 a lot or $600 per front foot, at $43,500, the average depth being 120 feet I add $4,350, which is 10 per cent., and make that plot $47,850; or for the corner of marginal street and Sixteenth Street 100 by 97 feet 6 inches on the marginal street, irregular, $70,912.

Tenth Avenue frontage, two corners at a unit of $15,000, plus 50 per cent., or $4,500.

There are 134 interior front feet at the same unit of $15,000, or $600 per front foot, making $80,400, or a total for Tenth Avenue of $125,400.

On Seventeenth Street there are 86.31 feet by 92 feet in depth, which I now considered to be 100 feet, at the rate of $440 per front foot equals $37,972. I then deduct for depth 3 per cent., or $1,139, making a total of the plot 86.30 by 90 feet, $36,833.

The next on Seventeenth Street is a plot 71 by 92 by 35, average width 53 feet, so we have a plot 53 by 100 at $440 per front foot, which equals $23,320. Then adding because of the width in front $3,000 we have $26,320, and deducting 3 per cent. for the depth of the plot, which is only 92 feet, we have a total for a plot 71 by 92 of $25,531, or a total for Seventeenth Street of $62,364.

On Sixteenth Street there are 86.21 feet by 100 feet in depth, which at $460 per front foot equals $39,652, and taking 3 per cent. off for the shortness of the lot we have a total for Sixteenth Street of $38,463, or a total for the block of $363,139, to which is added 10 per cent. for plottage, making a total of $399,452, which I have called $400,000.

Q. You add your plottage at that point, do you?

A. Yes, sir.

5630 Q. That is your method of computation, so far as plottage is concerned?

A. Yes, it varies in various cases, the amount of plottage, but the method is the same.

Q. Is that the method pursued by Mr. Thompson and Mr. McHale?

A. No, I think not.

Q. You said you and your firm pursued a method satisfactory to you, but you do not mean to be understood as claiming that because they have adopted that method that every person adopting another method would be at fault?

A. Not at all. I said we had adopted it and used it and a great

many others did; I have heard of various methods, but we prefer this one.

Q. This is the method you have adopted, however, as an appraiser, is it?

A. Yes.

Q. During all your experience?

A. Yes.

Q. How long has that been?

A. I cannot state exactly when that began, but in various proceedings which are on record in the last four or five years and before that in my own office—I was able to judge of value.

Q. I mean since you have been acting and testifying as an appraiser?

A. Yes.

Q. The past four or five years?

A. Roughly.

Q. You would not say three years, would you?

A. No, I would rather not.

Q. Now, your former valuation of block 689 was $808,500?

A. Yes.

Q. And you value it at the present at $471,500?

A. That's right. The value is arrived at in the same way.

Q. What is the reason for the difference?

A. The reason for the difference is that the block as it now appears on the map is smaller than it originally was.

Q. To what extent?

A. On West Seventeenth Street 380.47 feet as against 800
5631 feet originally. On Eighteenth Street there are now 451½ feet, roughly, as against 800 feet. That is the difference in size, without going into the angles.

Q. I would be obliged to you if you would give me the exact dimensions of the property as you figured on the basis of $808,500, and the exact dimensions of block 689 as you figure it to-day?

A. Certainly. On the basis of $808,500 the dimensions were then 800 x 184. The dimensions now are 451.55 on Eighteenth Street, 184 feet on 10th Avenue, 380.47 feet on Seventeenth Street, and 195 feet on the marginal street. There may be an inch more or less on the marginal street because it is a diagonal line.

Q. Before we proceed with that further, give me the dimensions of block 688 as it existed when you valued it at $844,000, and what the present dimensions are?

A. Originally 800 x 184, and now the dimensions on West Sixteenth Street are 286.21 on Tenth Avenue 184 feet. On Seventeenth Street 357.29, and 195 feet on the marginal street.

Q. Now, be kind enough to proceed and give me the details of your present valuation of block 689?

A. My marginal street unit is $14,500; Seventeenth Street, $11,000; Eighteenth Street, $10,500; Tenth Avenue, $14,500.

Considering first the corner of marginal street and Seventeenth Street the corner itself 25 x 100, the unit is $14,500, plus 50 per cent. or $21,750; adding for depth $543 we have $22,293.

The plot north, being an interior plot, 72 feet 6 inches in front, at the rate of $580 per front foot, which is the same unit, $42,050; adding 10 per cent. for an average depth of 120 feet, $4,205, or a total of $46,255; making a total for the corner of the marginal street and Seventh Street $68,548.

The corner, corner of marginal street and Eighteenth
5632 Street, the corner itself, 25 x 100, the unit is $14,500, plus 50 per cent., which equals $21,750.

The interior plot, 72 feet 5 inches x 100 feet, at $580 per front foot, which is the same unit, equals $42,050, or a total for that half of the marginal front of $63,800.

On Tenth Avenue there are two corners, the unit is $14,500, plus 50 per cent., which equals $43,500.

An interior, 134 feet, $580 per front foot, total, $77,720, or a total for the Tenth Avenue valuation of $121,220.

On Eighteenth Street there is first a plot 180.50 feet at the rate of $420 per front foot, which is the unit of $10,500 per lot, equals $75,810. Deducting on account of the shortness of the lots $2,274, we have a total of $73,536.

The next plot on Eighteenth Street, 71 x 100 x 35, average in width 53 feet, considering the plot, therefore, as 53 x 100 feet, at $420 per front foot, equals $22,260; adding for the extreme width in front $3,000, makes $25,200, and deducting on account of the shortness of the lot we have $24,500, or a total for Eighteenth Street of $98,036.

On Seventeenth Street, 180.5, at the rate of $440 per front foot, equals $79,420; deducting 3 per cent. for depth we have $77,038, or a total for the block of $428,642, to which is added 10 per cent. for size, making a total of $471,506, which I have called $471,500.

At 5.05 p. m. an adjournment was taken to Wednesday, January 16th, 1907, at 11 a. m.

Last Exhibits:

Complainant's, 296.
State's, 000.
City's, 236.

5633 Circuit Court of the United States, Southern District of New York.

CONSOLIDATED GAS COMPANY OF NEW YORK, Complainant,
vs.
JULIUS M. MAYER, as Attorney General of the State of New York; WILLIAM TRAVERS JEROME, as District Attorney of New York County; FREDERICK E. GUNNISON, JOHN C. DAVIES, and LUCIAN L. SHEDDEN, Constituting the New York State Commission of Gas and Electricity, and THE CITY OF NEW YORK, Defendants.

Before Arthur H. Masten, Special Master.

JANUARY 16TH, 1907.

Met pursuant to adjournment.
Present: The Master, Mr. Mathewson, Mr. Burr, Mr. Kirby.

5634 WILLIAM H. WHEELOCK resumed.

By Mr. BURR:

Q. I think we finished last night, Mr. Wheelock, with your detailed statement with regard to block 689. Will you be kind enough to give me the accurate dimensions of block 690 as it was when you placed the valuation of $453,500 on it?

A. On 18th Street the property faced 525 feet; on the westerly line it was 184 feet; on the easterly line it was 184 feet; and the total of the 19th Street block was 400 feet. There were various lots out on 19th Street. At present the block is 474.73 feet in length on 18th Street, 195 feet on the marginal street and 184 on Tenth Avenue and 525 feet on 19th Street, deducting 125 feet for the plots marked out, or 400 feet owned by the gas company on that street.

Q. Your present valuation is $483,000, is it not?

A. $483,000.

Q. Will you give me the details of that $483,000, Mr. Wheelock?

A. I used a unit on the marginal street of $14,000; on the 18th and 19th Streets, $10,500, and on Tenth Avenue $14,000. Beginning at the corner of the marginal street and 18th Street, the corner is 25 feet by 100; the unit of $14,000 plus fifty per cent. equals $21,000; adding for extra depth 2½ per cent., we have a total for that corner alone, $21,525.

The next plot to the north is 72 feet 6 inches by 100, which at $560 per front foot, or $14,000 a lot, figures $40,600; adding ten per cent. for extra depth, being an average of twenty feet, we have for that plot seventy-two feet six inches by 120, $44,660, making a total of $66,185.

The corner of the marginal street and 19th street is divided as follows: Corner lot 25 x 100 feet at the unit given plus fifty
5635 per cent., equals $18,000, $3,000 being taken out for the loss of the corner itself. The next plot, 72 feet 6 inches x 100

at $560 a front foot, being the original unit of $14,000, equals $40,600, or a total of $58,600. On Tenth Avenue, the two corners which have a unit of $14,000, plus fifty per cent., equals $42,000. The interior 134 feet, $560 per front foot, equals $75,040, or a total for the Tenth Avenue frontage of $117,040.

The 18th Street frontage, there are 274.75 feet at $420 per front foot, or a unit of $10,500 per lot, equals $115,395. Three per cent. is deducted on account of the shortness of the lots, making a total of——

Q. How short is it?

A. Ninety-two feet deep, making a total for 18th Street of $111,936.

On 19th Street there are 274.75 feet minus 125 feet owned by other individuals, which leaves a balance of 149.75 feet owned by the Gas Company, which at $420 per front foot equals $62,895; three per cent. being deducted for the shortness of the lots, which are again ninety-two feet deep, we have $61,009.

The next lot, 71 x 135 feet, shows an average width of 53 feet, therefore 53 by 100 feet at $420 a front foot equals $22,260; on account of the extra width in front, I add $3,000, making a total of $25,260; and deducting three per cent. for the fact that the lots are only ninety-two feet deep, $24,503, or a total for the 19th Street frontage of $85,512. Total for the block $439,273, to which is added ten per cent. for size, making a total of $483,200, which I have figured at $483,000.

Q. Upon what basis do you deduct three per cent. from a lot that is 92 feet long?

A. It is more or less a matter of individual judgment, partly based on scales.

Q. What scales?

A. Our own scales; not particularly made by anybody.

5636 Q. Does that apply to a similar deduction in block 689 and 688 and all throughout?

A. Yes, I have used that throughout.

Q. Give me the dimensions of block 691?

A. 691 originally was 350 feet on each street by 184 feet on 11th Avenue and 184 on the easterly line. At present it is 119 feet on 19th Street, 190.08 on 20th Street, 184 feet on the easterly line and 195 feet plus or minus a few inches on the marginal street.

Q. Will you give me the details of your valuation?

A. The unit on the marginal street is $14,000; on 19th Street, $10,500; on 20th Street, $11,000. Using the marginal street we have two corners plus 50 per cent. added to the unit value of $14,000, makes $42,000. 145 interior feet at $560 per front foot, or the original unit of $14,000 per lot, equals $81,200 or a total for the marginal street front of $123,200. On 19th Street there is a plot 19 x 100 x 54½ x 100 which therefore averages 36 feet 9 inches x 100, which at the rate of $420 per front foot or the unit of $10,500 per lot, makes $15,435. There is deducted $1,250 because of the width in the back and narrowness of the lot in front, making a total of $14,185. Three per cent. is again deducted on account of the lots

being 90-2 feet deep, and we have $13,760 as the total for 19th Street.

On 20th Street there is left a lot 90 x 100 x 54½ feet x 100, or an average of 72¼ x 100, which at $440 per front foot or $11,000 per lot equals $31,790. The sum of $2,000 is added for extra width on the street making $33,790. Three per cent. is again deducted for the shortness of the lot making a total for 20th Street of $32,777, or a total for the block of $169,737. To this is added the same amount for size, making a total for the block of $186,710, which I have made $186,500.

Q. I think those were all the plots that you re-appraised?

A. Yes.

5637 Q. Being back to block 688 and the valuation that you placed upon the different lots comprising that plot, will you tell me how you arrived at your lot valuation?

A. Unit values do you mean?

Q. Yes.

A. Well, a great many things make up unit value.

Q. Well, in that particular case what entered into your mind?

A. The result of my inspection of the neighborhood, and the character of the property and what I saw going on, and what sales I could find and what records we had.

Q. For instance, will you tell us what you saw going on?

A. Very little change in the last three or four years; tenement houses, some stables and some factories, and a tendency to grow up in factories.

Q. Will you tell me what new factories you saw going up there?

A. I don't know that I can name them. There was one built by the National Biscuit Company which occupies the entire front of the block; I am not sure what block it is, but it is within two squares of this property.

Q. How new is that factory?

A. I should say it was just being completed.

Q. How far away is that factory from the property on block 686?

A. I said I could not give the exact location; I think within two squares. I have not been to the property since before my last testimony.

Q. I presume you mean two blocks by two squares?

A. Yes.

Q. Did you see any other improvements taking place in the neighborhood?

A. I saw the improvements being made by the city, the marginal street and new wharves.

Q. What improvements did you see being made by the city?

5638 A. Simply the work going on in making the marginal streets and the completion of the wharves, those that are not already finished; the paving of the marginal street was not being made at that time and I doubt if it is now.

Q. Then you simply surmised that the improvement in the marginal street was going to be made?

A. No, I found that the property had been taken by the city, the streets laid out and fences erected.

Q. Had the streets been laid out physically, Mr. Wheelock?

A. I don't know that I can define the term "physically"; if you mean that wagons are going through?

Q. Yes.

A. They are; with difficulty, yes.

Q. Now, that marginal street that you refer to; you say a wagon could get through with difficulty?

A. Yes.

Q. Did you see any wagon going through there?

A. Yes, I saw some ice wagons going through there.

Q. That is, going down to the dock, was it not, crossing the street?

A. I cannot remember what streets I saw them going between, but they were going north and south—16th or 17th Street.

Q. You did not see any wagons going in the direction of 20th Street from 16th Street through that street, did you?

A. It was either 16th or 17th Street where I saw the wagon going.

Q. As a matter of fact, is not that street fenced up?

A. Not that I remember, when I was there.

Q. When were you there?

A. I walked through or along the marginal street from the beginning of the company's property to the end of it.

By Mr. MATHEWSON:

Q. You did not climb any fences?

A. Not that I remember.

By Mr. BURR:

Q. You did not see any fences?

A. Not at those points, no, sir; there may have been south of it.

5639 Q. Where did you see the fences?

A. I did not see any, except the fences that were built between the blocks dividing the streets from the prop-rty which had been taken; there were some rough board fences there, but they did not interfere with travel north and south with me, going the same direction.

Q. Block 691, between 19th and 20th Streets, can you tell me where the nearest improvement is to that block?

A. Well, what do you mean, tenements or——

Q. Any kind of an improvement. What do you mean by an improvement?

A. There are structures directly opposite, on 19th Street.

Q. What kind of structures?

A. Old buildings, some sheds and some three-story tenements, and —well, that is the character of the improvement on the north side, I should say, of 19th Street, as I remember it.

Q. Would you describe it as an adequate improvement in that neighborhood?

A. In that location I should think that factories might be a better form of improvement even now.

Q. Were they not very old buildings?
A. Yes, sir; most of them very old.
Q. They are cold water tenements, are they not, as a matter of fact?
A. Yes, I doubt if there is any modern tenement.
Q. Are they not known as barracks?

Mr. MATHEWSON: I object to that.
Mr. BURR: They are the oldest kind of cold water tenements.
The WITNESS: There were very poor buildings in the neighborhood.

Q. With regard to block 690, where are the improvements there?
A. I think on the most easterly plot marked out on that map that there are two old buildings, that is my recollection; and the
5640 single lot next width to that, which is marked out, my impression is that it is vacant.
Q. What was left of that?
A. I don't remember.
Q. That I see you have also marked out?
A. Yes, it is not owned by the gas company.
Q. Is not that an old four-story tenement house?
A. It may be; I am not clear as to that, I don't remember that very accurately.
Q. Those buildings, would you characterize them as adequate improvements for that neighborhood?
A. Hardly as good as the neighborhood would warrant now.
Q. And take block 689, will you tell me where the improvements are in that neighborhood?
A. The gas company owns that entire block.
Q. And block 688?
A. The same is true of that.
Q. Are there any improvements on the block next to block 689, and if so what are they?
A. In which direction?
Q. East?
A. East, oh, yes.
Q. What are they?
A. The Tenth Avenue front, if I remember correctly, is built up with old tenements and some yards and further east there are better buildings, towards Ninth Avenue still, a good many yards and old tenements; the general character of the improvements there is poor, very poor.
Q. So that you cannot, as a matter of fact, mention a single new improvement in that whole neighborhood, can you, Mr. Wheelock?
A. Only the one that I have spoken of.
Q. And that is two blocks away?
A. Yes.
Q. Now, Tenth Avenue, south of Fourteenth Street, what is the character of the buildings there?
A. South of Fourteenth Street the Astor ownerships and various estate ownerships have created a better class of buildings, especially a

little farther to the east, where large factory buildings have
5641 been put up on long leases to responsible tenants and the character of the improvements is better, stronger.

Q. There is a cold storage plant?

A. Yes, a good many——

Q. And an ice plant?

A. Yes, there are a good many such plants in that neighborhood. There were wine merchants and cold storage plants and biscuit factories and various things.

Q. And the Gansevoort Market is there?

A. Yes. It is hardly an adequate improvement, though.

Q. But as a matter of fact, all that property south of Sixteenth Street is more valuable than the property you have been speaking of just above Sixteenth Street or between Sixteenth and Twentieth Streets because of those improvements?

A. It is a little better improved, yes; the estates up there have improved their property.

Q. So as the result of your computation with regard to these four plots you make a difference in your total valuation of $1,392,500?

A. That is right.

Mr. MATHEWSON: No, not those four plots; those four plots plus those other two plots taken, and the bulkheads, the whole thing.

The WITNESS: Yes.

Q. What was it you said with regard to the Dugro transfer that Mr. Thompson had spoken of in his testimony? You said you could not find any record of it?

A. I said I could not in my place, and I did not make a very diligent search, but the transfer companies where I went had no record of it. I do not doubt such a transfer exists, but I could not find it.

Q. I think you said yesterday that you had spoken with Judge Dugro's real estate representative and that he knew nothing at all about it?

5642 A. No, I said I had spoken with the people who usually carried through his sales, and I meant by those the title companies.

Q. What title company?

A. I spoke with the Lawyers' Title and Title Guarantee & Trust Company. Mr. J. Ray Cleveland, of the Title Guarantee & Trust Company, knows a good deal of his real estate business but not all necessarily.

Q. As a matter of fact, is not that title company searching the title now for Judge Dugro for that particular piece?

A. Not that I could find, Mr. Burr.

Q. Did you read Mr. Thompson's testimony with regard to that particular part?

A. Yes, I did.

Q. Do you recall that he stated the title did not go through at that time, though the price had been agreed upon because there was a squatter upon the property?

A. I remember the fact now that he said there was a squatter there.

Q. Don't you recall the fact that Mr. Thompson had the original contract with him here?

A. No, I do not. I do not doubt that it is so, I do not doubt that the sale went through, all I say is that I did not find a record of it, although I have not used every means of finding out.

Q. You have no idea of impugning the statement made by Mr. Thompson?

A. Not at all.

Mr. MATHEWSON: There is no such idea.

The MASTER: That is sufficiently clear; it has been stated three or four times.

Q. Have you got the records of the Dock Department showing the lease of that bulkhead property which you refer to?

A. I have the Dock Department's publications in my office.

Q. That is the 187 feet between 109th and 110th Streets, that I have reference to.

5643 A. Yes. By the way, Mr. Burr, can I correct the error that was made?

Q. Yes, when I come to it. I am informed by Messrs. Thompson and McHale that they do not find any such record in the Dock Department book.

A. I think I can show it to them. I have no record of the page. Mine is a book about that thick (indicating).

Mr. MATHEWSON: That is about four inches thick?

The WITNESS: Yes.

Q. Do you know whether the land under water went with that bulkhead?

A. It must have.

Q. And some upland?

A. Not that the record shows.

Q. Will you get that book?

A. Yes, I can produce it.

Q. Now, then, you may correct those dimensions, the transfer to Mr. Ogden, I think it was.

A. Yes. I said the bulkhead was 80 feet 8 inches long. I was in error in copying it; it was 50 feet 8 inches. The consideration was $45,600. I verified that by an inspection of the certified copy of the award.

Q. You say that if Twelfth Avenue was in existence you would allow sixty per cent. for a corner lot over an inside lot?

A. I would at Forty-second Street and also at Forty-fourth, Forty-fifth and Forty-sixth Streets.

Q. Why?

A. Simply a matter of judgment.

Q. Upon what do you base your judgment?

A. Why, exactly the same reason as I have given before in the testimony. I would in different parts of the city add various amounts

to the inside lot value, of lots on the corner, all the way from forty to one hundred per cent.

Q. Doesn't that allowance go as low as twenty-five per
5644 cent.?

A. I cannot recall any place where we put it at twenty-five, but I do recall forty.

Q. Well, outside of your own experience, do you recall where it has been done, where it is as low as twenty-five?

A. I don't know how others have made up their figures, but I don't remember instances at twenty-five per cent.

Q. You have not paid any attention to how others arrived at their figures?

A. Well, I have not asked other appraisers how they arrived at their figures.

Q. In what section of the city do you allow forty per cent. for corners?

A. Well, the sections where there is very little building, say for instance, in the west and south of Dyckman Street would be a case where there is very little building, where the advantage of a corner are comparatively slight, and because there are on that hilltop no buildings also—it is rather hard to pick a section offhand, but there are various sections of the city where the advantages of the corner are less than other places, and, in my view, forty per cent.

Q. Haven't you in mind any section built up where you allowed forty per cent.?

A. No, I don't think I have.

Q. Will you give me an illustration of any sale or place that you allowed forty per cent.?

A. I don't think I can. I simply have done so. I don't remember all the appraisals I have made, but I remember figuring as low as that at various times, but I cannot give you an instance. We make from thirty to fifty appraisals a day.

Q. Do you know how Batterson & Eisele bought their property at Shadyside for the marble yard, whether there were any buildings on that property?

A. I don't know, I don't think there were any at all.

Q. But you don't know anything about it, do you?

A. No. I wasn't there at the time and you cannot see what
5645 may have been there before, but I should think there were no buildings, from the character of the land. It does not look as though there had ever been a foundation put on it.

Q. Now, you say, in your opinion, that if the Gas Company was excluded from Twelfth Avenue and Forty-second and Forty-third Streets that they could not obtain contiguous property of the same extent at less value than those placed by you on that property which they now have.

A. That is my opinion, based on actual work.

Q. Have you made any attempts to secure property in that neighborhood?

A. I have made attempts in various neighborhoods for corporations. I bought 12,000,000 for the Pennsylvania Railroad.

Q. I am speaking of this particular contiguous neighborhood that you have reference to?

A. I think I have, yes, for the Gas Company.

Q. Where and when?

A. It is over at that place, or in Sixty-sixth Street. No, it is not in that section, Forty-fourth and Forty-sixth Streets.

Q. So that your statement, in response to the question by Mr. Mathewson, that the company could not obtain property contiguous to the property that you valued at the figures that you placed upon their properties, was merely a guess, wasn't it?

A. No. We have various small plots for sale all through the city, and there are some even adjoining or close to this plant, if I remember correctly, but we have no large plots for sale and they could not be acquired. It is my belief that they could not be at the same price.

Q. There is no property there for sale at all, is there?

A. I think we have four or five small plots in that section for sale. We sold some in that vicinity.

Q. When you say a "section" what territory does that em-
5646 brace?

A. Within a block and a half one way or the other, north and south.

Q. Could you give me an illustration of any lots that you have for sale there and what the price is?

A. No, I haven't any record of this. I simply remember in a general way the records of my office.

Q. Will you produce those records when you produce that book of the Dock Department?

A. Of property for sale?

Q. Yes.

A. I think I can; yes, sir.

Q. Now, take up the property, block 991, lot 126, Avenue D and Tompkins Street. You also ventured an opinion there that the company could not get property in that neighborhood at the prices you have placed upon block 991?

A. I would say the same in any section of the city.

Q. That is merely a general opinion. Do you base the opinion with regard to 991 upon any property you have tried to acquire?

A. I have no specific facts to bring forth in that section at all. This is merely based upon my experience throughout the city.

Q. What is the nearest piece of property that you have to block 991 for sale?

A. I can't tell you, I haven't my records here of my office.

Q. You have at your office?

A. I believe complete records, yes.

Q. Will you produce them?

Mr. MATHEWSON: I am not going to ask the witness to produce records. I do not think it is necessary or pertinent.

Mr. BURR: I hardly think it is, because he says he does not know anything about it.

The MASTER: He can do as he likes about that, you know. I shall

not direct him to appear for further cross-examination unless very good cause is shown.

5647 Mr. BURR: I shall not ask him unless he is willing to complete his examination.

Q. Mr. Wheelock, yesterday you said, with regard to that piece of property at 114th Street and 3d Avenue, that it had some extra value because of its "'L" shape?

A. I think it has a little, yes.

Q. Upon what do you base that opinion?

A. The same as before. It is observation of what takes place in the city, what we can see being done with plots. With Ls generally there are advantages of light and additional space, and it is on two streets; advertisements, various things.

Q. Well, you must have something to base your statement upon. Do you know of any sale or any actual occurrence where there was an increased valuation placed upon an L-shaped piece of property, by reason of its connection with the corner?

A. By reason of its connection with the corner? Yes; I do remember the consideration given, but there is a very clear case in my mind where my cousin, Austin G. Fox, owned a lot next west to the northwest corner of Sixteenth Street and Broadway and it was bought by the Bank of the Metropolis; they paid a very large price for it.

Q. Was Mr. Austin G. Fox acting for you when he bought the Pennsylvania property, or were you acting for him when you bought the Pennsylvania property?

A. He had nothing to do with the Pennsylvania property.

Q. I understood you to say you had some experience in buying the properties in the neighborhood of the Pennsylvania improvements?

A. Yes, I bought two-thirds of all they bought.

Q. I understand Mr. Austin G. Fox was the one that bought it?

A. He had nothing to do with it.

Q. Now, this particular piece on 114th Street and Third Avenue, this L-shaped piece of property near Third Avenue, has no
5648 connection at all with the corner, has it?

A. I don't know what you mean by "connection." The two are adjacent and contiguous.

Q. It is 150 feet from the corner, I understood?

A. It is exactly 100 feet. It begins 100 feet westerly from the northwest corner of 114th Street and Third Avenue.

Q. Well, it is 100 feet from the corner?

A. Yes.

Mr. MATHEWSON: The corner lot is 100 feet deep?

The WITNESS: The corner lot is 100 feet deep.

Q. There are only 25 feet on Third Avenue, and then there are 150 feet 5 inches on 114th Street; is that right?

A. That is two dimensions of the plot. In fact, there is a little more on Third Avenue than that.

Q. Twenty-five feet 2¾ inches?

A. Yes, that's right.

Q. Then that L is 100 feet and 11 inches in depth?
A. Yes.
Q. But it has no connection with the property on Third Avenue other than the 25 feet 2¾ inches at the corner?
A. No, not that I could find out. The Consolidated Gas Company does not own any more there. I would like to say, Mr. Burr, that the value of a plot of that shape is actual not only to the people who own it but speculative for the uses that it may be sold for. It abuts four parcels on Third Avenue and may be used in connection with any one of the four, and that is always an element of speculative value which is taken into consideration in appraising property.
Q. In a tenement house neighborhood does extra depth count for anything?
A. As a rule very little unless it amounts to more than ten feet or so.
5649 Q. Isn't this a tenement house neighborhood?
A. Generally, yes.
Q. You say that 126 and 128 East Seventeenth Street was sold to the city for $40,000 and $50,000 respectively?
A. Yes.
Q. Where did you get that information?
A. The *City Record.*
Q. Have you had any experience in selling the City of New York property?
A. Yes.
Q. From that experience don't you know that the city always pays more than the value of property at private sale in order to save the expense of condemnation proceedings?

Mr. MATHEWSON: I object to that as irrelevant.
Question allowed; exception.

A. As a rule, that is so. Sometimes it is not. I had a number of plots for Carnegie libraries where they did not pay more.
Q. In reply to a question of Mr. Mathewson's you said Mr. Thompson stated on his examination that he did not know of the sale of 174 Hester Street?
A. I do not think I said that, I think it appears he did know the sale, but didn't know the consideration. If I remember it all right, it appears Mr. Thompson has a record of the sale, but not of the consideration.

Mr. MATHEWSON: Yes, that is precisely the question I put, and if the stenographer has it otherwise it is a stenographic error.
Mr. BURR: You were asked this question by Mr. Mathewson (page 5612): "I also asked Mr. Thompson, at page 2754 as to a sale at 174 Hester Street, between Mulberry and Mott, 25 by 100 feet, with old three-story buildings of no value, selling in 1905 at $26,500. No record was found by Mr. Thompson." As a matter of fact Mr. Thompson testified as regards that.
5650 Mr. MATHEWSON: My question was that there was no record of the price. The stenographer must have left it out, because I find it here in my notes as I asked the question.

Mr. BURR: You said it was three stories, when as a matter of fact, Mr. Thompson stated it was five stories.

Mr. MATHEWSON: That may be. My question was subject to any correction the witness wanted to make.

Q. I call your attention also to the question Mr. Mathewson asked regarding No. 606 East Fourteenth street, in which he stated that Mr. Thompson could obtain no record of the sale of the property, when, as a matter of fact, at page 2758 of Mr. Thompson's testimony, he testified fully with regard to the sale. Your information was incorrect that he didn't know anything about it?

A. It is not true he testified at that place to 606 East Fifteenth Street.

Mr. BURR: At page 2785 it is 606 East Fifteenth Street.

Mr. MATHEWSON: At pages 2760 and 2761 his testimony is as to 606 East Fourteenth Street, and the witness was correct and my question was correct.

Q. I want to call your attention to another mistake. You were asked, Mr. Wheelock, with regard to 455 West Sixteenth Street, and your attention was called to the fact, as stated by Mr. Mathewson, that Mr. Thompson knew nothing of the record of the sale?

Mr. MATHEWSON: No; no price. Now you are wrong again.

Mr. BURR: Could not give the consideration.

5651 A. That is right.

Q. It is 445 instead of 455, isn't it?

A. There must be a mistake.

Mr. MATHEWSON: I did not ask about 445 West Sixteenth Street and had no note of it at all during my examination.

Mr. BURR: I simply go into it so that the record may be straight.

Mr. MATHEWSON: Just make a note that the record should be corrected.

Q. Mr. Thompson stated that there was a nominal consideration in his testimony, isn't that so?

A. I think he did. That is, that was one of the sales where the source of my information was not admissable, I believe.

Mr. MATHEWSON: The Title Guarantee & Trust Company. That is excluded already, Mr. Master.

Q. You were asked by Mr. Mathewson whether you knew of the sale of Sixty-first Street, north side, 50 feet east of the railroad track, which, I understand him to claim, Mr. Thompson had testified he knew nothing about, when, as a matter of fact, Mr. Thompson only denied the fact that the lots sold for $8,100 each.

A. I think that is right.

Q. Is there any record of the consideration, to your knowledge?

A. There is a record of it which is satisfactory to me, but not to you, Mr. Burr.

Q. I do not understand that you dispute the correctness of the method pursued by Mr. Thompson and Mr. McHale with regard to the plottage, and so forth?

A. I have nothing to say about that whatever.

Q. You in your own office and in your own experience
5652 pursued a different method?

A. That is all.

Q. But you do not question the correctness of their method?

A. I have not, and I do not wish to.

Q. Making this allowance of three per cent. for shortage, what rule did you follow—just a matter of judgment?

A. A matter of my own judgment, and some scales which we use in our office, which are made up by various people connected with our office, and taken from other lists outside.

Q. Does that conform to the Hoffman rule or the Neill rule?

A. I don't think the Hoffman rule goes into deductions for lots which are short. It gives a value of rear portions and front portions of lots in relation to the whole lot, but you can deduce a rule from that and that has been in use in our office, together with the Neill rule, also other rules that have no name.

Q. What is the difference between the Neill Rule and the Hoffman Rule?

A. Mr. Neill gives more value to the front of the lot in proportion to the rear.

Q. Is that the only difference?

A. The only difference that I remember specifically.

Cross-examination by Mr. KIRBY:

Q. Assuming a gas company owns the entire block with the exception of the corner property and one of the same size in the middle of the block, would you consider that the corner property was of 40 per cent. more value to the company than the one in the middle of the block?

A. Assuming that the company owned all but the corner, do you say?

Q. All but the corner and a property of the same size in the middle of the block?

A. I do not think I catch your meaning.

Q. We are assuming that a gas company owns the entire
5653 block with the exception of a property of, say, 100 x 50 feet on a corner, and another property of the same size in the middle of the block; do you consider that the corner property is worth 40 per cent. more to the gas company than the one in the middle of the block?

A. They do not own it. How can it be?

Q. Would it be worth it if they were purchasing it?

A. That depends. If it had no use for it in addition to its plant it probably would not pay more than that. If it could use it and add it to its plant it would pay anything up to 100 per cent. to get it.

Q. Would it not pay anything up to 100 per cent. to get property in the middle of the block?

A. Possibly considerations governing the purchase might govern the price unduly.

Q. Can you see any reason why it should pay more for the corner

property, other things being equal, than it would for the other property?

A. Certainly; advantages of light and air and the future.

Q. For the purposes of future business do you think it would pay more?

A. If you mean to put a gas holder on it I doubt if it would.

Q. You have given us to-day certain unit values which you use in getting the total of your appraisals on this property which has been taken by the city. Do those unit values differ from those which you use in making your appraisal of the entire property, including that which has been taken by the city and of which you have already testified?

A. The street units are the same; Tenth Avenue units are the same. I had to establish a marginal street unit because when I testified before there was no marginal street, and the land was interior property.

Q. And are those marginal street units higher or lower
5654 than those of the street units which you use in the other parcel?

A. They are higher than the street units naturally.

Q. And why?

A. Simply because they face a water front, a very wide street with large dock improvements.

Q. Are these improvements there at this time?

A. Some.

Q. What?

A. Docks.

Q. Where are these docks?

A. From Fifteenth Street north.

Q. Are they being used?

A. Some are, some are not; they are not leased yet.

Q. Wherein do these unit values which you have given differ from those on streets facing the water front northward of this property? Are they higher or lower?

A. My values north of the gas property to Twenty-first Street would be considerably higher.

Q. Would these values which you have given for this property be higher or lower than those immediately to the north?

A. Immediately to the north there would be a gradually increasing scale as you go north.

Q. And to the south?

A. Equally. It would increase a little more rapidly two blocks to the south.

Q. Are these values higher or lower than those of the avenue value which you used in your previous appraisal?

A. If I remember correctly, they are within $1,000 of the Tenth Avenue value.

Q. $1,000 which way?

A. Increased value to Tenth Avenue.

Q. Have you based these values upon the expected rental values of these docks which are not as yet being used?

A. I have already given my basis of value all the way through.

Q. With the exception of this marginal street have you noted any different conditions in coming to your present unit values
5655 than those which were in existence at the time you based your appraisal of the entire property?
A. No, I have not changed them in any particular.

Redirect examination by Mr. MATHEWSON:

Q. In your estimate of values of Eighteenth Street, I assume you took into account all these improvements in character of buildings and the tendencies to which you have testified?
A. Yes, sir, and also what I hear is going on and not yet bought up.
Q. And in all your estimates you took into account your general information and knowledge?
A. Yes.

By Mr. BURR:

Q. You are testifying then with regard to something you have not specified here, with regard to what you hear is going on or proposed to go on?
A. Oh, yes, gossip in the neighborhood always affects our judgment, general opinion.
Q. Then your valuation is based upon gossip, is it?
A. Partly.

The MASTER: Oh, Mr. Burr, do not waste time.
Mr. BURR: I won't waste any time after that answer.
Mr. MATHEWSON: I may say at this point that I shall not ask the witness to bring any records from his office. I do not consider it pertinent or necessary in the absence of instructions from the Master. As to the Dock Book to which reference was made, I will ask him to send it to me and show it to you, Mr. Burr.
Mr. BURR: You may accentuate or minimize your testimony in your own fashion.

5656 DATUS F. BROWN, a witness called in rebuttal on behalf of complainants, being first duly sworn, testifies as follows:

Direct examination by Mr. MATHEWSON:

Q. Where do you reside?
A. Albany, N. Y.
Q. Are you connected with any concern dealing in gas stoves?
A. Yes, sir, Rathbone, Sard & Company.
Q. Where is their business?
A. Albany, New York, and Aurora, Illinois.
Q. Have they dealings outside the State of New York?
A. Yes, sir.
Q. In gas stoves?
A. Yes, sir.
Q. Over the country generally?
A. Throughout the world.

Q. Are they makers of gas stoves and appliances?
A. Yes, sir.
Q. What is your position?
A. Manager of the Gas Stove Department of the business.
Q. Do you know whether your company has made tests from time to time as to the minimum point of complete efficiency of their gas stoves?
A. Yes, sir, we have.
Q. During years past?
A. We always find it necessary to do that.
Q. And have they made these tests in reference to the actual cooking and baking and use of the apparatus practically?
A. Yes, sir.
Q. What pressure at the apparatus do you find as the result of these tests is required for the efficient operation of your apparatus?

Mr. BURR: Objected to as incompetent, immaterial and irrelevant.
Question allowed. Exception.

5657 A. About 20-10 to 35-10; what is known as 2 to 3½ inches.
Q. Do you notice a loss of efficiency when you get below 20-10?
A. Yes, sir.
Q. And if you get to 15-10 what sort of a flame do you notice, as to being weak or wabbly or strong, or otherwise?
A. It is a very weak flame.

Mr. BURR: If this witness is called in rebuttal, I would like to know what the object of these questions is; what is the particular point this witness is called to rebut?
Mr. MATHEWSON: I think it was shown before when a previous witness was on the stand. We presented a proposition that we could not maintain the pressure between an inch and *and* 2½ inches, and if we could we couldn't give service to the consumers. Mr. Edgerton comes in and testifies that one inch pressure is sufficient for the operation of gas apparatus and apparatus generally. We are rebutting that by practical men.
The MASTER: Proceed.
Mr. MATHEWSON: That is all.

Cross-examination by Mr. KIRBY:

Q. What is the name of the stove that you manufacture?
A. "Acorn."
Q. Are they on sale in the City of New York?
A. No, sir.
Q. Do you know how many are in use in the City of New York?
A. We have not a large number in use. We have not been fortunate in getting into this market.
Q. What kind of burners do you use?
A. Ordinary type burner—star-drilled top, with a drilled oven burner.
5658 Q. Which is an adaptation of the Bunsen burner, is it not?

A. Yes, sir; blue flame burner.

Q. Where did you make these tests of which you speak as to the pressure required?

A. Albany, New York.

Q. What kind of gas?

A. It is what is known as a coal and water gas; it is the coal gas enriched for candle power with oil.

Q. What is the candle power?

A. Our candle power up there runs about 20 or 22, I don't remember just what.

Q. Did you ever measure it?

A. No, sir. I have been at the works, however, and Mr. Dunn told me what the candle power was.

Q. But you don't know?

A. I couldn't testify, no, sir.

Q. At the time you made these pressure tests did you at the same time make tests of candle power?

A. No, sir.

Q. You don't know whether the candle power varied while the pressure test was being made, do you?

A. It may have. Not likely.

Q. How did you make your test for pressure, with what apparatus?

A. The ordinary pressure *guage*.

Q. What do you call the ordinary pressure *guage*?

A. The pressure tube—trap—weighted.

Q. Would you call such an instrument one that would register within one-tenth of 1 per cent?

A. That would be as close as we figure, I am sure.

Q. Would you figure as close as that?

A. No, I don't think so.

Q. How close would you figure?

A. Well, I can't say as for that. We use the ordinary pressure *guage*. I am not a scientific man; I am simply practical.

Q. What is the name of the apparatus?

A. I couldn't say. We use various pressure *guages* such as are on the market.

5659 Q. Did you make these tests yourself?

A. Yes, sir.

Q. Have you a record of the result thereof?

A. They are usually kept.

Q. Have you those records?

A. No, sir.

Q. You are speaking then just from memory?

A. I am speaking from memory.

Q. When were the last ones you made?

A. At the time our salesmen were in. I think it was about January 3d of this year.

Q. What was the test that you used and upon which you based your conclusion that the most efficient pressure is from 20/10 to 35/10?

A. It was with reference to the efficiency of burners.

Q. How did you make it?

A. We had a case where a gentleman claimed that our burner was not efficient, and his test was bringing to a boiling point ten pounds of water. Our burners, at the ordinary pressure, would consume——

Q. What do you mean by ordinary pressure?

A. Well, say 20/10. We consume about ten and one-half feet per hour. In order to bring the given quantity of water to boiling temperature we found we had to use a large amount of gas per hour and that by using a burner, for instance, that would consume fourteen feet per hour, or putting pressure back of the gas that would enable us to use that in our burner, we could raise this quantity of water to the boiling temperature with less gas than where we use it under low pressure or less gas pressure. The matter came up with reference to a test we had at Pen Yan, New York.

Q. Did you also make experiments as to how close to the flame the receptacle containing the water should be placed for the higher efficiency?

A. Yes, sir.

Q. And does that make any difference?

A. Yes, sir.

5660 Q. Does that make any difference with different pressures?

A. Yes, sir.

Q. What point did you use in your various tests of pressures?

A. We tried to establish, as near as possible, the centre of what we call the purple light.

Q. Did you keep any record of the various distances from the flame or the receptacle in the different experiments which you conducted?

A. Yes, sir.

Q. Do you remember those?

A. We tried from 1¼ inch, 1⅜ inch, 1½ inch. We found with our pressure 20/10, that we were keeping up in our experiments, that about 1⅜ inch with 20/10 pressure was the proper distance.

Q. Now, did you endeavor also to adjust the gas burner of the range so as to give the highest efficiency?

A. Yes, sir.

Q. And this also makes a difference, does it not?

A. Certainly.

Q. And with a high pressure the gas could be adjusted in its flow so that you would have a high efficiency, would it not?

A. Yes, sir.

Q. Where did you attach your apparatus to make the reading of pressure?

A. It was just before the gas entered the range.

Q. What point is that?

A. Just where the gas entered the supply pipe at the back of the range.

Q. On which side of the cock turning on the gas?

A. On the supply pipe side.

Q. Was the cock turned during the taking of these experiments?

A. I hardly understand you.

Q. Was the cock upon the gas range turned during the making of these experiments?

A. Only if you turned it off and on.

Q. Did you take any experiments with the pressure below 20/10?

A. Yes, sir.

Q. What is the pressure of gas as furnished to the burner in Albany?

5661 Mr. MATHEWSON: He stated as near as he knew, didn't he?

Mr. KIRBY: No.

Q. Do you know?

A. From about fifteen tenths to thirty-five tenths.

Q. How did you get a constant pressure for your tests?

A. We have a little separate tank weighted down to give us the proper test.

Q. And it was from this tank that you took the gas to make your experiments?

A. Yes, sir. We used it for testing both high and low pressure, both natural and artificial.

Q. Do I understand you in saying there is no difference in efficiency between twenty tenths and thirty-five tenths?

A. The location of the cooking vessel would have something to do with that, sir, according to what you wished to accomplish. There are various things to be accomplished in a gas range, the cooking of the top burners, the use of the oven, the broiler, toasting, roasting; we find for accomplishing all these things our minimum pressure would not be less than twenty tenths because cutting down your burner with a valve and lessening the orifice, if you attempt to turn down your burner you do not get good results. If your burner is highest it is wide open, which would be a waste of gas We might perhaps cut that pressure a little, very little, and get a good result. An average of twenty-five tenths I consider the best possible result.

Q. That is, the range could be left without adjustment of any kind and produce the best average result at that rate?

A. Yes, sir.

Q. Are you familiar with the operation of gas ranges and heating apparatus in Great Britain?

A. No, sir.

5662 Cross-examination by Mr. BURR:

Q. You have had no experience in operating gas plants, have you?

A. No, sir

Q. Does the candle power of the gas affect the stove at all?

A. Not as much as pressure.

Q. How much does the candle power of the gas affect it, if at all?

A. I could not speak as to percentage of efficiency.

Q. But you would say that in addition to the pressure the candle power of the gas would enter into the efficiency of the stove or the amount of efficiency in the stove in some degree?

A. Yes, it will, certainly, but not to as great a degree as the pressure. I simply said this because I test in different parts of the country. We have a factory at Aurora, and I test on gas over there and I test in the gas at Albany and various places where I go, to see about the efficiency of our stoves, and I have found this, that we get better results where high pressure is maintained and less with reference to the candle power of the gas.

Q. The size for instance of the supply pipe has something to do with the stove?

A. Well, you are enabled to main- a better and more even pressure which is necessary if you use a supply pipe.

Q. If you had a larger supply pipe you would be able probably to do with 15/10 pressure, and with a smaller one would you require 20/10 pressure?

A. No, sir.

Q. Why not?

A. Because you cannot use gas in ordinary appliances under 15/10 pressure and get as good results as you will above that. You cannot gain in pressure by putting it in a large pipe.

Q. Is it not a fact that the price of gas has been reduced in Albany recently?

A. I don't know, sir.

By Mr. KIRBY:

Q. I take it where you do not intend to increase the size of
5663 the supply, it is an advantage in that it maintains a more even pressure than would otherwise be maintained?

A. That is all.

Q. And to maintain an even pressure is a great advantage in the efficiency of a gas stove?

A. With a good sized supply pipe, no question about that.

Q. And in these experiments which you have made around the country, you generally found the gas supply was about an inch pressure, didn't you?

A. The average is about 18/10.

Q. That is measured at the stove?

A. Yes, sir; in the manner we ordinarily measure.

By Mr. MATHEWSON:

Q. Your test for pressure with the ordinary "U" tube?

A. Yes, sir.

Q. Where the water stands in the tube and the difference between the height of the water on one side of the tube and the other represents the pressure?

A. Yes, sir.

Mr. BURR: That is objected to as leading. Why not let him tell the method he pursued in making this test.

Mr. MATHEWSON: You asked him, and I asked him if he used the ordinary "U" tube of a certain character.

Q. When you speak of gas being adjusted at the range in the case

of these tests, do you mean it was adjusted as between the amount of gas and air required to render the efficient burning?

A. I don't remember answering that.

Q. You said the gas was adjusted at the range in each case of your tests, as I recall your statement, before your test or at the time of the test. When you say gas adjusted do you mean gas adjusted as between the apparatus and gas and air to get the best burning efficiency?

A. Yes, sir.

5664 JOHN M. BROCK, called as a witness on behalf of the complainant, in rebuttal, being duly sworn, testified as follows:

Direct examination by Mr. MATHEWSON:

Q. Where do you reside?
A. 204 Percy Street, Flushing, Long Island.
Q. Are you connected with any concern that handles gas ranges?
A. Yes, William M. Crane Co.
Q. Where are they?
A. Their office and store rooms are at 1131 Broadway.
Q. New York?
A. Yes, and their place of manufacture at Peekskill.
Q. Are you head of the sales department of that company?
A. That is my position, sales manager.
Q. How long have you been there?
A. With the Crane Company?
Q. Yes.
A. Three years and three months I would say, to be accurate.
Q. How long an experience have you had in this business?
A. Between eight and nine years.

Mr. KIRBY: You mean the gas range business?
The WITNESS: Yes, and the handling of gas appliances.

Q. In connection with the gas stove business, has your company and have you made experiments and tests as to the pressure under which your stoves operate efficiently, the minimum pressure?

A. We are making experiments at all times, especially at this season of the year, when we are producing and introducing new goods.

Q. Do you make your experiments with New York City gas?

A. We make experiments with both Peekskill and New York City gas; my experiments are made with New York City gas.

5665 Q. Will you state what the result of your experiment is with New York City gas as to the minimum pressure required for efficient operation of the gas range?

A. I find that when I get below a pressure—I might in explanation say that I take my pressure at two points, at the street side of the meter, or at the point where the service enters a building, before it enters the meter; the pressure there that I find works at the best advantage at that point is 25 to 30 tenths, at the gas appliance, taking my pressure at that point where, supposing we are testing before the gas enters the upper manifold, before it enters the range at all, I either put a T in or a U *guage* or Thorpe *guage*, or take my pressure

at the top manifold, and there I prefer and find that I have the best results by working under a pressure at that point of 18 to 22 tenths.

Q. 18 to 20 would be the minimum?

A. I would say yes.

Q. Have you made any tests in reference to baking and cooking, as well as tests as to the best pressure in raising water to a required temperature?

A. In raising water I find a better advantage is had by increasing the pressure, if possible, about 5 tenths, I would say; I find it is necessary in heating water in the appliances that we manufacture, and such as I have tested, to increase that 5 tenths, but, of course, we operate under a less pressure.

Q. And that refers to water heaters?

A. Yes.

Q. But taking the use of the gas range for cooking, what results do your tests disclose as to the efficiency in actual use of the ovens or stoves for cooking and baking, as to pressure?

A. The tests we make most, of course, are baking tests, or as we call them, biscuit tests. I find if I operate with a pressure of less than 18 tenths, say 15 or 12 tenths, I will speak of 12 because that is a test I made recently. In making my biscuit test the finished article, after baking a considerably greater length of time,
5666 and a greater consumption of gas, the finished article is not at all inviting in appearance: the top of the biscuit instead of being flat, as we desire it, is raised in the center and droops off to the edges; there is a crust formed entirely over the biscuit, which has the effect of cutting the roof of your mouth; I don't know of any better way to say it. Then when we break our biscuit open the interior of the biscuit, instead of being flaky, as we like to have it, is hard and unpalatable.

Mr. KIRBY: What pressure biscuit is this?

The WITNESS: About 12 tenths.

Q. So you would not consider that in your experience an efficient pressure to cook biscuits, at any rate?

A. I would hate to have our stoves *guaged* by that product.

Q. Without going through the details as to the cooking of meat, do you find similar results when you get below 18 and to 20 tenths?

A. My experience with steak is that it is steamed out, and white on the top if baked with a slow heat, and we cannot get that rich gravy that is produced when meat is roasted at a proper heat.

Q. In other words, you cannot cook it properly?

A. No, I cannot.

Q. Have you had any experience as to the point of flashing back?

A. Where my pressure is very low the burner is more apt to snap back. If I open my air port to get a perfect flame the burner is very apt to snap back at the first lighting.

Q. What is your experience as to Welsbachs?

A. When you ask me that, my experience with lighting has not been as much.

Q. You have not had as much experience as you would like, to testify?

A. I have not had much.

Q. Then I will not ask you as to Welsbachs. Is your con-
5667 cern willing to guarantee efficient operation of the stove that they install with a pressure of less than twenty tenths?

Mr. KIRBY: I object to that.

Mr. BURR: Objected to as incompetent, irrelevant and immaterial.

The MASTER: I will allow it.

Mr. BURR: Exception.

Mr. KIRBY: Exception.

A. I would not want to put out a stove and promise any kind of results at all and guarantee them with pressure less than sixteen tenths; I would sooner put it that way.

Q. And at sixteen tenths you would not consider the results as good as at twenty?

A. Not by any means.

Q. You mean as to the results obtained by the stove and consumption of gas both, so far as concerns the consumer?

A. I could not do my work as efficiently or economically with gas pressure below that.

Q. You mean by that the consumer could not?

A. No.

Cross-examination by Mr. KIRBY:

Q. Your tests have not been directed toward the heat units developed by the gas burned so much as toward the kind and character of cooking which the gas would do, are they?

A. We never make our tests so definite as to take in actual heat units; our tests are made by boiling tests, boiling a pound of water to see how much gas is required and how much time is required.

Q. In making a tests which has to do with boiling a certain quantity of water, there is a great deal of heat which does not go to heat the water, is there not?

5668 A. Well, there is a certain loss of heat at the side of the cooking utensil, and there must be; and I think the way we construct our burners to-day we overcome that a great deal, especially the burner we make, that is one of our advertising claims.

Q. And you have never made any tests which would take into account those lost heat units as well as those which are used in heating the water?

A. I would not know how to make an appliance to make such a test; I have never seen one.

Q. That would be a scientific test beyond your experience?

A. I think it would be a scientific discovery.

Q. But such tests are made and the heat units lost are so small that they can be allowed for by proper proportioning, can they not?

A. Not in any tests I have made.

Q. In taking your pressures you have stated the two points where you took your pressure?

A. Yes.

Q. One between the meter and the service main?

A. Yes.

Q. And one between the bracket to which I take it the hose or pipe of the gas range——

A. No—the iron pipe.

Q. And the iron pipe and the stopcock to turn the gas into your range?

A. At the side of the range is what we call an open manifold, it is practically the end of the pipe system on the range, and that is joined to the gas supply with a union, that is the point I sometimes put my test.

Q. And that point is on the side of the cock away from the range?

A. Before the gas enters the range.

Q. Have you ever made any tests between that stopcock and the point of ignition in the range?

A. I don't think I have; I don't think I have ever tapped into a burner proper. I tap between those points at the oven manifold.

Q. Now, differences of construction in ranges would pro-
5669 duce different results, would they not, as far as the pressure which would be required for highest efficiency is concerned?

A. There might be, I would hardly think it would be so it would be of any importance, though.

Q. If the oven of a range were so constructed that it would not contain the heat, you would have to look to the flame wrapping around it, as it would around a receptacle in which water was being heated, you would look for a higher pressure for greater efficiency, wouldn't you?

A. As ovens are constructed to-day, with the two styles, the flues or direct heat, I think it would have no bearing. The heat is carried through a series of flues or directly into the oven.

Q. The effort by you is to use all the heat possible?

A. Well, without preventing perfect combustion, and smothering of your flame.

Q. What is the name of the stove you manufacture?

A. We manufacture the "Vulcan" line of appliances, and also sell the "Perfect" line of appliances.

Q. What kind of a burner does the Vulcan stove use?

A. We use a circular burner drilled open at the center with the flame produced directly from the center, a pipe burner drilled.

Q. Is that an adaptation of the Bunsen burner?

A. It is the regular blue flame burner which all ranges use, I believe.

Q. And do you use a needle valve on your ranges?

A. No, a fixed orifice.

Q. And you use a stopcock valve?

A. We would have to use some means to stop the gas off, certainly.

Q. But it is not a needle valve?

A. No.

5670 By Mr. BURR:

Q. Does the size of the orifice affect pressure?

A. We regulate the orifices to meet the pressures at different points.

Q. At what different points?

A. Some different towns operate under different pressures.

Q. Do you find a difference in the quality of the gas in the different towns?

A. I think there is a difference in the quality of gas. There is some variation in candle power.

Q. Do you adapt your stove to the quality of the gas?

A. We take into consideration pressure, which seems to be the only thing to be considered.

Q. The quality of the gas does not affect the stove at all, does it?

A. We do not build stoves taking that into consideration, because I do not see any need of it.

Q. You have been building stoves for three years?

A. I never built any stoves at all myself. I have sold a great many of them and handled a great many.

Q. Do you sell any to the Consolidated Gas Company?

A. Quite a number.

Q. Are you acquainted with Mr. Brown, the gentleman just on the stand here?

A. I know him, yes.

Q. Does he sell stoves to the Consolidated Gas Company?

A. I believe his testimony answered that.

Mr. MATHEWSON: I do not think he testified to that.

Mr. KIRBY: He said he wanted to, but had not.

Mr. MATHEWSON: Yes, I think that is something like it.

5671 Re-direct examination by Mr. MATHEWSON:

Q. Are not these stoves which your concern is selling, and which you have described, and which Mr. Brown sells, the ordinary gas stoves such as are generally used, gas ranges?

A. They compare with any that I know of, there is only one that I know that is radically different.

Q. They are common and usual patterns?

A. Yes.

Q. Has your concern a large bus-ness over the country?

A. As manufacturers of gas appliances generally, taking in the variation of lines, I think we are the largest in the country.

Q. As to the quality of gas affecting results, is it not the fact that the amount of air which you introduce, or allow to be introduced with the gas, is adjusted in accordance with the quality of the gas so as to get a proper mixture?

A. Yes.

Q. And that would take care of itself in that way?

A. Yes, and it is adjusted through our efforts.

Q. In reference to the pressure regarding which you testified in reply to my question, I referred, of course, to the pressure at the apparatus. I supposed that is what you referred to?

A. Yes. I spoke about two, one at the apparatus and one at the street.

Q. But in your testimony you always referred to the pressure at the apparatus?

A. Yes.

Q. Is it not the fact that in the experience of the company in New York, it is not infrequently necessary to take out stoves because you cannot get pressure enough or they will not operate efficiently?

A. We lose a great many orders in our retail department because we cannot use the appliance at all. Take gas heaters, and logs, and grates, because we cannot get sufficient pressure.

5672 Q. In the City of New York?

A. In the City of New York.

Q. Do you find any disquisition as to the number of heat units which are being produced is of much value in a case where the housewife cannot cook her biscuits with the pressure she gets?

A. In fact, that question of heat units, and I claim to be a practical gas man, is so far foreign to me that I do not want to testify anything about it.

Q. What you testify is as to actual results?

A. As to actual results.

Re-cross-examination by Mr. KIRBY:

Q. Mr. Mathewson has opened up a new field in regard to gas ranges. Do you take it that the reason for the inability to use gas ranges and logs efficiently is due to too small housepiping?

A. We find that sometimes, we find that we cannot get the supply owing to the pipe being too small, but if we had a little better pressure we could get it through that particular pipe.

Q. And you could get it through a very small pipe if you had enough pressure?

A. I don't know how far we could, but I think we could work down as far as one-half or three-eights.

Q. You would need four, five or six inch pressure for that?

A. No, I think thirty tenth, or three inch pressure would give us what we wanted.

Q. That would not be so if you had a good many apparatuses for this small pipe you speak of?

A. I do not think our plumbers would pipe houses to the extreme you are mentioning.

Q. You have never made any tests as to the calorific power of gas of different candle powers, have you?

A. No.

5673 By Mr. MATHEWSON:

Q. Is it not a fact that complaints have been very numerous lately as to pressure in the operation of gas stoves?

A. We had a district in Harlem, I am not prepared to say exactly, but it was within the last four or five months, we simply had to refuse to take any more orders there. We could not help them out, and it was due to lack of pressure, and we had to turn down every order; and in a number of cases I know the gas stoves have been taken out and coal stoves put in.

By Mr. KIRBY:

Q. And Harlem is a district which has been built up comparatively recently, and the houses are fairly new on the average?

A. And proper size piping.

Q. What do you mean by proper size pipe?

A. We have a scale figured out; I am not prepared to say exactly what that scale is, but it is figured from a series of tests. When we start on a line of 100 feet, I will say 100 feet, but I do not intend this to be exact—we would say we have to use an inch pipe. If we start with 150 feet we would have to increase it to one and one-quarter inches; and that is taken into consideration when the house is piped.

Q. And that is taking into consideration a pressure at the meter of how much?

A. I think that is based on about twenty-five tenths; I would not want to say that that is positive.

Q. So if the house were piped properly in accordance with your scale there would be no troubles such as those you speak of?

A. And proper consideration given to the number of appliances which were going to be taken off that line.

By Mr. BURR:

Q. Do you say that Harlem has been recently built up?

5674 A. I think there has been a great deal of building recently; my experience in New York only dates back three years.

By Mr. MATHEWSON:

Q. Of course, the house piping is regulated by the city authorities?

A. I think so.

Q. And we have no control over that?

A. No.

By Mr. KIRBY:

Q. But the city has no control over the size of the pipe, has it?

Mr. MATHEWSON: That is it, they specifically require it.

The WITNESS: I think they require what size of pipe must be used.

Q. It cannot be less than so much?

A. No.

By Mr. BURR:

Q. The trouble in the apparatus in Harlem has only been in the last four or five months?

A. No, I wouldn't say that. I say we had a series of trouble which started about four or five months ago. I think we are having some complaints still about that.

Q. But you had no complaints before that?

A. I am speaking of this particular time four months ago. I do not care to go beyond that. I know it was brought to my attention particularly:

By Mr. MATHEWSON:

Q. Is it not a fact that since the new pressure law went into effect on July 1st, 1905, you have had great numbers of complaints?

Mr. BURR: Objected to as leading; all this is leading.
The MASTER: It is rather leading.

5675 JOHN W. M'CLELLAN, called as a witness in behalf of the complainant, in rebuttal, being duly sworn, testified as follows:

Direct examination by Mr. MATHEWSON:

Q. Where do you reside?
A. 909 Seventh Avenue.
Q. City of New York?
A. Yes.
Q. Are you connected with any company manufacturing or distributing gas appliances?
A. Yes, sir.
Q. What company?
A. Manhattan Gas Heating Company.
Q. What is your position there?
A. General Manager.
Q. Do they manufacture gas grates?
A. We manufacture grates, fireplace grates.
Q. Logs, as they are called?
A. Yes, we might say—they are manufactured under a contract, but they are meanufactured from our design, and from our constructions.
Q. Do you sell grates to the general public?
A. Yes.
Q. To the consumer at retail?
A. Yes.
Q. You do not find that the gas companies are purchasers of grates in large numbers?
A. Very few in late years.
Q. How about water heater apparatus, do you sell that?
A. We sell only a water heater made by the Michigan Stove Company.
Q. Has your company made tests as to the minimum pressure at which full efficiency can be obtained by your apparatus?
A. On gas g-ates and logs.
Q. What is the minimum for efficiency there without flashing back?
A. We do not care to put in a gas grate or gas log under a twenty tenths pressure.
5676 Q. Do you find a higher pressure than that better?
A. Yes.
Q. Are you able to state as to water heaters; is your experience sufficient so you can say what minimum you would consider?
A. Only in a way that if we are putting on water heaters, if we

do not get a twenty tenths pressure; we certainly would not put them on and guarantee them.

Q. You refer to conditions in New York City?

A. Yes, sir, in New York City, Manhattan.

Q. And before you install such apparatus does your company make an examination to ascertain the pressure that may be expected?

A. If we suspect there is—you can tell ordinarily what the pressure is or we can tell, we are so accustomed to putting in grates and logs, we can tell by opening the cock; if we suspect there is a low pressure we put a test gauge on, and if the pressure runs under twenty or eighteen or twenty tenths, we would just as soon not put them in.

Q. You will not guarantee them under twenty?

A. No. We get more trouble from the apparatus if we put it under a low pressure. We would rather lose a sale and not bother with it. It gives us more trouble.

Cross-examination by Mr. KIRBY:

Q. Do you make these tests of which you speak?

A. I personally make quite a good many of them, yes, sir.

Q. Where have you made them?

A. Are you speaking now of testing our own apparatus?

Q. Yes.

A. At our place of business, 909 Seventh Avenue.

Q. And how do you test them?

A. We have an apparatus down stairs where we test, and we test with an ordinary U-gauge, I think it is one of Gleason's
5677 make; it runs up to 4½, 4½ I think is the maximum water test.

Q. At what point do you test the pressure?

A. Do you mean at what point do we test our heater?

Q. Yes.

A. Well, our object, of course, is to get a heater or burner that will run as low an amount of gas as we can and give a good result, and we have been obliged in the last two years to make our burner smaller. We make a face burner, or an asbestos burner, the regular size we used to run 17½ here and 23 inches high. Under the low pressure we find we can cut off 3 to 6 inches here (indicating).

By Mr. MATHEWSON:

Q. In width, do you mean?

A. No, in the height, and instead of having a 22 row, we run now about 16 and 17 row burners, in order to have the burner work under the same conditions now as we used to have a large burner work three years ago.

By Mr. KIRBY:

Q. So you endeavor to regulate all your apparatus in accordance with the pressure which you expect to be supplied to it?

A. We have been obliged to, by reason of the low pressure, but the customer demands even a larger burner in order to heat a room.

Q. Now, he could burn more gas, could he not?
A. In a larger burner?
Q. Yes.
A. Yes, a larger area, provided you opened the orifice below.
Q. You took these pressure readings yourself, in some instances?
A. I have, yes, sir, quite a number of them.

Q. You used a "U" tube, such as has been spoken of this
5678 morning?

A. Yes, I think ours is made by Gleason.
Q. Was that pressure taken at the meter?
A. No, sir; taken at the apparatus.
Q. Was it taken right by the stopcock to the apparatus?
A. Well, we have an arrangement, for instance the stopcock is here, here is a pipe running off here, that we put the gauge on, and the pipe continued with a T and the pipe continues off here (indicating) with the burner or apparatus, as you might say (indicating).
Q. So that the pipe which is connected to the "U" tube and to the Gleason tube, or whatever tube you use, is attached within, say, six inches or a foot of the stopcock of the apparatus?
A. Well, now, probably three feet.
Q. You have never made any test as to the calorific power of gases of different candle powers, have you?
A. No, I cannot say that I have. Our candle powers run about the same here.
Q. And you have never made any tests to show the number of heat units which would be developed by a gas in the City of New York burning at different pressures, have you?
A. No, sir, I have not.
Q. Your water heating apparatus carries a pilot light, doesn't it?
A. Yes, sir.
Q. By that you mean a light which is burning all the time?
A. Yes, sir. Well, what I speak of as water heaters is a heater that attaches to a boiler. We have sold a few of those large automatic heaters, but very few of them. We sell a great many of the ordinary heaters that attach to a boiler to heat a 40, 60 or 80-gallon tank.
Q. Well, those have a pilot light?
A. Yes, but it is not kept lighted all the time. It is only on the large automatic ones it is kept lighted.

Q. And the burner for such apparatus is similar to those
5679 which you have heard described here this morning, or has it any peculiar features?

A. I think the burner is the ordinary Star burner or drilled burner.
Q. Have you ever taken any pressure readings between the stopcock of the apparatus and the point of ignition of the flame?
A. That is, you mean at the meter and at the flame?
Q. No; I mean between the stopcock to the apparatus and the point of ignition of the flame in the apparatus?
A. Of the water heater.
Q. Of the water heater.

A. No, sir, only on our own grates that we manufacture.
Q. Where did you test them?
A. Our own grates?
Q. Yes.
A. In our shop.
Q. And at what point of the grate?
A. Well, do you mean for heat units?
Q. Yes.
A. No, sir, only in comparison with thermometers in front of them; we have made some tests with thermometers as to the different sizes of the burners which we make for the gas grates. Do you know what an ordinary gas grate is?
Q. I do.
A. With the asbestos front?
Q. Yes, I am well familiar with it. Have you ever made any tests with pressures at the meters that Mr. Brock has made reference to?
A. No, only at the apparatus.
Q. Nor of the loss of pressure between the meter and apparatus?
A. No, sir; there would be very little difference, I should judge, between the——
Q. It would depend entirely upon the house-pipe, wouldn't it?
A. Something of that sort and the location of the meter.

Mr. KIRBY: That is all.
Mr. BURR: No questions.

5680 Redirect examination by Mr. MATHESON:

Q. Under a pressure of twenty-tenths or above, the pressure is sufficient so that the flame rises and covers your grate front without carbonizing, doesn't it?
A. Under a twenty-tenths pressure for the large size burner it would hardly cover the fulltop of the burner with twenty-four rows; we have been obliged to cut them down.
Q. Why you cut down when you have a lower pressure is because the lower pressure will simply cover the upper part of the grate with carbon and soot and it will be ineffective?
A. No, there would be no carbon, providing we cut the burner down.
Q. That is what I mean?
A. There might be a little dirt raised on the upper part.
Q. That is what I mean, you cut down the size of the burner capacity?
A. We have been obliged to on account of the low pressure. We had to in most all of our burners.
Q. In the City of New York?
A. Yes. Outside we have had few or no complaints, only in this city, New York and Brooklyn. We have had some complaints over in Brooklyn.

At 1.05 P. M. adjourned to January 17th, 1907, at 11.30 A. M.

Last Complainant's Exhibit 296.
State's 000.
City's 236.

5681 Circuit Court of the United States, Southern District of New York.

CONSOLIDATED GAS COMPANY OF NEW YORK, Complainant,
vs.
JULIUS M. MAYER, as Attorney General of the State of New York; WILLIAM TRAVERS JEROME, as District Attorney of New York County; FREDERICK E. GUNNISON, JOHN C. DAVIES, and LUCIAN L. SHEDDEN, Constituting the New York State Commission of Gas and Electricity, and THE CITY OF NEW YORK, Defendants.

Before Arthur H. Masten, Special Master.

JANUARY 18, 1907.

Met pursuant to adjournment.

Present: The Master, Mr. Mathewson, Mr. Burr, Mr. Kirby, Mr. Page.

5682 THE MASTER: Note on the record that the adjournment on the afternoon of the 16th was at the request of Mr. Kirby, who had an imperative engagement, and counsel not objecting thereto; and that the hearing on the 17th was necessarily postponed on account of the engagement of the Master in the trial of a case in the Supreme Court.

WILLIAM H. CHILDS, called as a witness in behalf of the complainant, in rebuttal, being duly sworn, testified as follows:

Direct examination by Mr. MATHEWSON:

Q. Where do you reside, Mr. Childs?
A. 53 Prospect Park West, Brooklyn.
Q. Are you an officer of the Barrett Manufacturing Company?
A. I am vice-president.
Q. It is a company which purchases coal tar and ammoniacal liquors from the Consolidated Gas Company?
A. Yes, sir.
Q. Are you an officer of the American Coal Products Company?
A. I am vice-president.
Q. How long have you been in this business?
A. Fifteen years.
Q. Are you familiar with coal tar and the prices which are obtained for it, and the market prices?
A. Yes, sir.
Q. Both the raw product as received from companies and the price of the finished product after it has been treated or manufactured by the companies?
A. Yes, sir.
Q. What proportion of the coal tar of the United States do the companies of which you are an officer handle?
A. In excess of eighty per cent.
Q. It appears that the price received by the Consolidated Gas Com-

pany from your company is 2.24 cents per gallon for coal tar,
5683 the raw product. Is that lower than the market price in the City of New York?

A. No, sir.

Q. Do you know of any way in which the company could obtain a higher price than that in the City of New York from anybody?

A. No, sir.

Mr. BURR: Does he know whether the Consolidated Gas Company could get a higher price, is that what you mean?

Mr. MATHEWSON: I will put it in another way, if you object.

Q. Do you know of a way in which anybody in the City of New York could sell coal tar, the raw product, at a higher figure than the amount you pay the Consolidated Gas Company?

A. Not to average higher than that, no, sir.

Q. The value of coal tar depends upon the value of what products?

A. Do you mean in the purchase of it?

Q. Yes.

A. It is bought on a sliding scale, based on the value of pitch and dead oil, that is, creosote oil.

Q. And does the value of pitch and dead oil in the City of New York depend upon the market elsewhere?

A. Yes, sir.

Q. Where?

A. The foreign market.

Q. It is regulated by the foreign prices, in fact, then, isn't it?

A. Yes, sir.

Q. In the interior of the country, where freight is to be added to the cost of importation from a foreign country, what effect has that circumstance on the price of coal tar?

A. It does not affect it except to the extent of the foreign prices plus the freight; but the freight into the interior of the country is
5684 less than the freight from England or Germany to New York plus the New York freight from New York to the interior; that is, the through freight is less than the combined freight.

Q. So that the effect is as to the interior of the country, that, other things being equal, the coal tar will be worth a little more than in New York?

A. If it were dependent entirely upon the foreign price; in the interior of the country there is a large overproduction.

Q. Is coal tar a product which is scarce, or is it made in large quantities?

A. Very large quantities.

Q. Is it produced by gas companies alone, or by coke ovens as well?

A. There is more produced by coke ovens than by the gas companies.

Q. Now as to oil tar, is the market price and the value of oil tar as great as coal tar?

A. No, sir.

Q. How much less in New York?
A. In the purchase price—you are referring to the purchase price?
Q. Yes, I refer to the raw product as it comes from the gas companies.
A. About one-half cent per gallon less.
Q. Now, after your company receives the coal tar respecting which Mr. Edgerton testified, what do you do with it?
A. It is distilled.
Q. Have your companies large and extensive plants for that purpose?
A. Yes, sir, very large.
Q. Do they manufacture it into the final products which they sell?
A. Yes, sir.
Q. Do you have in that connection not only plants, but fleets of boats and other property?
A. Yes, sir
Q. You have stated that you take the coal tar from the Consolidated Gas Company. Do you take all the oil tar that they produce?
A. No, sir.
Q. Would you do so?
A. No, sir.
Q. It is used for burning, isn't it?
A. Yes, sir; we could not possibly handle it.
5685 Q. Now, Mr. Edgerton has testified that he made inquiries in the City of New York, I think from your concern, and found that five or five and one-half cents was the price for coal tar. What does that five or five and one-half cents refer to?
A. It is the retail price.
Q. Retail price of what, the finished product?
A. Yes, sir.
Q. Is that the price of the raw product as it comes from the gas company before you distil it and manufacture it?
A. No, sir, not in any quantity. For a few barrels——
Q. Is it possible to obtain that price in the City of New York for the raw product as far as your experience goes?
A. It could not be obtained.
Q. Did you ever know of a case where it was obtained in quantity?
A. No, sir.

Cross-examination by Mr. KIRBY:

Q. Mr. Childs, what was the price you said you paid to the Consolidated Gas Company for their coal tar?
A. 2.24 cents. This is in 1905.
Q. What price did you pay them therefor last July?
A. A trifle less than that.
Q. What price did you pay them last November?
A. Approximately the same; I could not give you the exact figure, but it would vary very slightly; there are only slight variations during the year.

Q. Do you pay this price to them delivered at their yard?
A. We take it from their yard.
Q. How do you take it away?
A. In lighters, tank boats.
Q. Who delivers it on board the boat?
A. I think they do.
Q. Your price is, then, delivered on board; is that true, Mr. Childs?
A. I am not sure whether they do the pumping or we do; we have facilities for pumping on all our boats and I think in some cases they do it and in others we do.

5686 Q. What uses do you make of this tar?
A. We distil it and use part of it in the saturation of roofing papers and sell a large amount in the form of pitch for street paving work and some of it is sold for the purpose of making briquettes of pitch and coal, and most of the pitch is used in the roofing business, gravel roofing, perhaps you would understand it better.
Q. It has a great and growing use, hasn't it?
A. Yes, sir.
Q. I believe your company is the Barrett Manufacturing Company which manufactures what is known as Tarvia?
A. Yes, sir.
Q. Which is coming into general use for the purpose of spreading upon macadam roads to improve them?
A. And laying the dust. There were 5,000 barrels used last year for that purpose.
Q. And such use is growing in your opinion, is it not?
A. We hope so.
Q. Your company is a successful one, I take it?
A. I presume so.
Q. As a matter of fact it pays 10 per cent. dividends upon its capitalization, does it not?

Mr. MATHEWSON: Is that worth while, to inquire into that? I do not think it is pertinent, and I object to it. Supposing it does?
The MASTER: Has the witness any objection to answering?
Mr. MATHEWSON: I have not any objection to his answering, if he cares to.
The WITNESS: As a matter of fact it does.
Mr. MATHEWSON: Mr. Kirby is trying to prove that ten per cent. is a fair return for an industrial company.
Mr. KIRBY: Yes, when it buys at this price and sells at a very large increase in price.

5687 Q. This distillation which you speak of, what are the products you get from that distillation, not coal tar?
A. No. Coal tar is the crude product.
Q. And that which you get from that is not known as coal tar, it is quite a different thing, is it not?
A. Yes, sir.
Q. It is not for the purpose of purifying the coal tar or driving any foreign matter out of it?

A. Some of it is, and some of it we sell as refined coal tar; Tarvia, for instance, is treated that way.

Q. But the product which you purchase from the Consolidated Gas Company is what is known as coal tar?

A. Yes, sir.

Q. And when a substance is sold on the market under the name of coal tar, it is your understanding that it is the same as that you buy from the Consolidated Gas Company?

A. Very little is sold in the form we buy it from the Consolidated Gas Company.

Q. It is quoted as such, is it not?

A. It is not the same quality.

Q. Wherein does it differ?

A. Coal tar differs much in quality, their coal tar is not suitable for the ordinary purposes that ordinary coal tar is sold for as coal tar.

Q. What do you mean by ordinary coal tar?

A. I mean coke oven tar, for instance.

Q. Do you purchase coke oven tar?

A. We do.

Q. How much do you pay for that?

A. Our average over the United States for nine hundred thousand barrels of coal tar and gas house tar in the year 1905 was 2.28 cents.

Q. That is four-tenths of a cent over and above that which you pay the Consolidated Gas Company?

A. Yes——

Mr. MATHEWSON: Four one-hundredths.

The WITNESS: Yes.

5688 Mr. MATHEWSON: Including this superior coke oven tar and all qualities?

The WITNESS: Yes, that is for all qualities.

Q. I take it you are familiar with the paper known as the *Oil, Paint and Drug Reporter,* are you not?

A. I see it occasionally.

Q. I call your attention to a quotation therein, on page 31 of the issue of July 23, 1906, Coal Tar in Oil Barrels, 50 gallons, $4.50 to $4.55. That makes a price per gallon of between eight and nine cents, doesn't it?

A. Including the barrel.

Q. No, excluding the barrel?

A. I think that price is including the barrel.

Q. That price is including the barrel, but 50 gallons at $4.50 to $4.55 is between nine and ten cents?

A. Counting the value of the barrel, which is $1, which is two cents a gallon from that for the price of the barrel.

Q. That would be between seven and nine cents?

A. It would be just seven cents in that quotation.

Q. Between $4.50 and $4.55, seven and a fraction thereover, which would be represented by the difference between $4.50 and $4.55. Do you figure in that the cost of a new oil barrel?

A. Of what is paid for the barrel, of what is paid for the oil barrel on the other side. Those are importations, I understand.

Q. But when they use barrels for this purpose they are not new barrels, are they?

A. No.

Q. Are you giving the figure of an old barrel such as would be used?

A. Old barrels over there are worth a dollar a barrel. May I ask the quantity of that importation?

Q. There is no quantity mentioned here. I am simply giving you the quotations for the prices of coal tar set down in the schedules there.

A. Is not there the quantity? Is there not a final number
5689 of dollars and cents obtained for such an amount of tar, which would show how much the quantity was?

Q. I fail to find it here.

Mr. MATHEWSON: Have you any objection to the witness seeing it?

Mr. KIRBY: Certainly he may, with great pleasure. (Handing paper to witness).

The WITNESS: It is not a shipment, that is a quotation.

Q. I call your attention to a quotation in the same journal under date of November 5, 1906, Coal Tar in Oil Barrels, 50 gallons, $4.40 to $4.60. That is a correct quotation, is it not?

A. That is what it reads there. I never saw any quotations before by that paper, and I do not think they are an authority.

Q. This journal gives quotations on oils, paints, varnishes, etc., drugs, acids, fertilizing material, and is a trade paper for that purpose, is it not?

A. Not for the coal tar business, no, sir.

Q. You have no reason to doubt the authenticity of such quotations, have you?

Mr. MATHEWSON: What do you mean by the authenticity of such quotation?

Mr. KIRBY: As such quotations are usually given in a paper of this kind, either stocks or bonds or other matters.

Mr. MATHEWSON: No doubt it appears in the matter that you are calling attention to perhaps, but I do not know what you mean by the authenticity of the quotations.

Mr. KIRBY: I asked him if he doubts it, and if so, why.

The WITNESS: They are not an authority.

Q. Which paper is the authority?

A. There is none.

5690 Q. Where would you go to find the quotation for sales or prices of coal tar?

A. I would ask the price of the dealers that sell it.

Q. Have you asked such prices?

A. No, sir. We sell it.

Q. You are not the only ones who sell it, are you?

A. No, sir. All those prices are maximum—few barrel lots.

Q. I call your attention to the heading at the top of this quotation: "Wholesale Prices Current. Note: Our quotations are those

of importers and manufacture for original packages in large lots. For broken lots higher prices are asked."

Mr. MATHEWSON: What about that, is it some question, or are you reading the paper into the record?

Mr. KIRBY: Mr. Childs has stated that such prices he understood were for small lots. I am reading the quotation from the paper to show——

Mr. MATHEWSON: You cannot do that unless some question is asked. I move to strike it out.

Q. I ask you whether you now wish to change your answer that it is for small lots?

A. I know it cannot be for anything else.

Q. But you do doubt the authenticity of such statements?

A. I know they are not authentic.

Q. You are familiar with the paper, are you not?

A. I simply know there is such a paper. We never use it.

Q. Your company is the Barrett Manufacturing Company of Philadelphia?

A. No, sir—New York and Philadelphia. They may advertise in it; I don't know.

Q. I call your attention to the *Oil, Paint and Drug Reporter* of November 25th, 1906, and to page 16 thereof and ask you if that is an advertisement of your company?

5691 A. It is an advertisement of our chemical department, yes, sir.

Q. That is part of your company, is it not?

A. Yes, sir. I never saw it before.

Q. I call attention to the advertisement in the issue of Monday, November 19th, 1906. The last page thereof:

"Carbolic Acid; Barrett Manufacturing Company."

A. Yes.

Q. And I ask you if that is your company?

A. Yes, sir.

Q. You here state that you are "Exclusive producers and the only manufacturers in this country of all grades of carbolic acid," and so on. That is a statement of your company, is it not?

A. That is our company's advertisement; yes, sir.

Q. And as a matter of fact, in all of these issues which I have here I find an advertisement of your company. So your company is familiar with this Journal?

A. I said I was not familiar with it.

Q. But you are an officer of this company?

A. I am. I never saw those advertisements before. I did not know we advertised in it.

Q. Are you familiar with the market quotations of coal tar?

A. I am familiar with the prices at which we sell them, yes, sir.

Q. I asked you if you were familiar with the market quotations?

A. I don't think there are any such things as market quotations.

Q. Then you are not familiar with any market quotations of coal tar?

Mr. MATHEWSON: I think he has answered the question. I object to further pushing on that.

Q. Are you familiar with the prices obtained abroad on
5692 the sales of coal tar by the gas company?
A. No, sir

Mr. MATHEWSON: I object to that as immaterial and irrelevant anyhow.

Mr. KIRBY: The witness has stated that the price depended on the price in the foreign market.

The MASTER: Well, he says no; that is an answer.

Q. What basis do you use in your conclusion that your price is based upon the price obtained in the foreign market?

A. I did not say so.

Q. Then the foreign market has nothing to do with the price here?

A. On the contrary, it has everything to do with the price of importations of pitch and oil. I am not talking about coal tar; I don't know what they pay.

Q. Pitch and dead oil, you have testified, come from coal tar, have you not?

A. Yes, sir.

Q. And what percentage of the bulk does pitch represent?

A. If it was all distilled, about sixty-five per cent.

Q. And dead oil?

A. About thirty per cent. more, twenty-five to thirty per cent.

Q. Making ninety-five per cent. of the total, the price of coal tar would be a proper basis of comparison of the price of these two, would it not?

A. No, sir.

Q. Are you prepared to state the price obtained abroad for pitch and dead oil?

A. I can give you the price of pitch in certain parts abroad.

Q. Do you know whether there is any duty in this country on the importation of coal tar?

A. I do not think there is.

Q. Do you know whether there is any duty on the importation of pitch?

A. I do not think there is.

5693 Q. Do you know whether there is any duty on products from coal tar?

A. Only on the very finer products which are not manufactured in this country.

Q. Do you know the freight from England to this country?

A. Only approximately.

Q. Would the freight on coal tar from England here be as much as a cent a gallon?

A. I should think it would be more than that.

Q. Do you think it would be as much as two cents a gallon?

A. I think about two cents, probably.

Q. Which would mean that to meet such prices as you pay the

Consolidated Gas Company, the coal tar would have to be sold in England for less than a quarter of a cent a gallon, would it not?

Mr. MATHEWSON: That is a conclusion.

The WITNESS: You are confounding the retail price obtained by shipping it here and the price paid the producer.

Q. You pay the Consolidated Gas Company 2.24 a gallon, don't you?

A. We do, yes, sir.

Q. If the freight, as you have just stated, of coal tar from England here is more than two cents, it would mean that to meet the market which you make in this way, the companies there would sell at less than .24 of a cent?

A. The freight on coal tar has nothing to do with it. It is the freight on pitch and dead oil. The prices are based on pitch and dead oil. Coal tar is not imported except in very small quantities.

Q. The freight on coal tar and on pitch and dead oil would be approximately the same; their weights do not differ very much?

A. Approximately the same.

Q. So that the freight on a gallon of one would be ap-
5694 proximately the same as the other?

A. Approximately.

Q. Do you wish it to be understood that there is no trade paper which gives quotations upon the market value of these products, which quotations would be recognized?

A. No. I do not know of any trade paper which gives authentic quotations of the market value of pitch and dead oil in this country.

Q. Do you know of any abroad?

A. Yes, there are several that give the prices over there.

Q. They would not be authorities on the prices here?

A. No.

Q. Do you know whether or not those papers state the price of coal tar in England at less than one-quarter of a cent a gallon?

A. I should not think they would. There is nothing to indicate that they would. The price of coal tar here has nothing to do with the price which we pay the Consolidated—has nothing to do with the freight on coal tar here. In other words, the freight on coal tar has nothing at all to do with what we pay to the Consolidated for the — based on the price of pitch and dead oil.

Q. Do you also buy the ammonia from the Consolidated Gas Company?

A. Yes, sir.

Cross-examination by Mr. BURR:

Q. Mr. Childs, was the price for coal tar higher in 1906 than it was in 1905?

A. No, sir; a little lower, a trifle.

Q. In other words, you got more in 1905 from the Consolidated Gas Company for coal tar?

A. We paid them more.

Q. You paid them more than in 1906?

A. I think so; a little more, I think.

Q. You don't happen to have the exact difference in
5695 amount of price, do you?

A. No, I haven't the exact difference in mind, but I should think it might be one-eighth cent less than in 1906; that would be my impression.

Q. And as to 1904, did you pay less or more that year than in 1905?

A. I couldn't tell you without looking. The prices have not varied a great deal.

Mr. MATHEWSON: The contract is in evidence, Mr. Burr.

Redirect-examination by Mr. MATHEWSON:

Q. Do you not at all times pay to the Consolidated Gas Company the full market value for their coal tar?

Mr. BURR: Objected to as calling for a conclusion.
Mr. PAGE: That is objected to.
Question allowed.
Exception.
Mr. PAGE: He stated there is no market price.
Mr. MATHEWSON: Market value.

A. We are obliged to under the contract.

Mr. BURR: I move to strike that out.
Motion granted.
Mr. MATHEWSON: Exception.

Q. Well, explain a little more fully.

The MASTER: I assume by "market value" you mean market price. It was in that aspect that I allowed the questions.

A. The price paid the Consolidated is dependent upon the price at which we sell pitch and dead oil. We sell pitch and dead oil at prices which are governed by the imported price of those two articles.

Q. And you are referring now to the written contract be-
5696 tween your company and the Consolidated?

A. Yes, sir.

Q. And that contract is in evidence. So that what you pay to the consolidated depends upon the price you get for pitch and dead oil, which are the products which you get from the coal tar?

A. That is right, sir.

Q. Now, you say that while you pay the company, the Consolidated, 2.24 cents the average throughout the United States is 2.28 cents. Does that 2.28 cents include the inferior quality of coal tar which you obtain from the coke ovens, and also any coal tar which you obtain at higher prices by reason of its being in the superior and subject to freight rates?

A. Yes, sir.

Q. If you were not paying the full value for coal tar would it not be possible for companies on the other side to come in and overbid you if they saw a profit?

Objected to as speculative.
Objection sustained. Exception.

Q. What are the quotations, so called, which have been called to your attention? For the raw product or for the refined and manufactured product?
A. I am sure I don't know what they are.
Q. You are familiar with the prices, are you?
A. Yes.
Q. Did you ever know of any such price, or do you know of such?
A. Only for a few barrels at a time.
Q. What proportion of the entire product in the United States does your company sell of these refined products manufactured here?
A. I should think in excess of 80 per cent.
Q. What do you mean when you say that the price which you obtain in New York for pitch and dead oil, and consequently
5697 the price that you pay for your coal tar, is governed by the prices paid?
A. The large purchases of dead oil have always been in the foreign market and we consequently are obliged to meet the foreign price. There is no other market for it except for creosoting purposes, and we consequently have to meet those prices. In pitch we have to meet the foreign price in order to sell our product.
Q. Do you know whether there is any tariff duty in England as to pitch and dead oil produced here?
A. I do not think there is.
Q. Nor coal tar?
A. No, sir.

Recross-examination by Mr. KIRBY:

Q. By your statement that you base your price to the Consolidated on the price you get for your refined products, you mean the prices you would get for your pitch and these other substances with chemical names mentioned here?
A. No, sir; it has nothing to do with it.
Q. You mean to say the prices you get for pitch and dead oil?
A. Only.
Q. Now, by the market price which you establish and get for these, do you mean the price for which you sell them to others than yourself, or which you get from yourself when you use them for the purpose of manufacturing Tarvia and other products?
A. Prices we receive from other people.
Q. What proportion of the coal tar which you purchase do you use in your own products?
A. The bulk of it.
Q. Almost all of it, do you not?
A. Not all of it. Tarvia is not used in our own products.
Q. You sell the Tarvia?
A. We sell it, but it is not pitch or dead oil.
5698 Q. No, but coal tar, is used in almost the total amount by yourself?

A. Yes, the bulk of the material is refined, if that is what you mean.

Q. What percentage would you say of the coal tar which you purchase do you in some way use in your own products?

Mr. MATHEWSON: Do not they have to use all of it.

A. I don't know what you mean. Would you call pitch and dead oil our own products?

Q. Yes, I would.

A. Well, the bulk of it then, we use in our own product.

Q. Ninety-five per cent. of it?

A. I wouldn't want to state the percentage, but the bulk of it.

Q. From this coal tar you produce these various substances to which I called your attention in an advertisement in this journal: Benzol, Toluol, Solvent of Heavy Naphtha and other coal tar oils?

A. In very small quantities; yes, sir.

Q. Also carbolic acid?

A. Very small quantities.

Q. Also that which goes to make up this Tarvia, whatever it is?

A. Yes, sir.

Q. Many others?

A. In a very limited degree, yes, sir.

Q. From coal tar, in addition to these substances which you have mentioned by name, there are numerous other chemical compounds produced?

A. Innumerable.

Q. And you produce them?

A. No, sir.

Q. Or employ that part, pitch and dead oil, which you get from coal tar?

A. It comes from the 5 per cent., yes, sir; in the pitch and dead oil; the pitch and dead oil represent about 95 per cent. of the distillation; the 5 per cent. goes into the finer products.

5699 Q. Do you manufacture those finer products?

A. We do not; only a few of them.

Q. And that constitutes the largest part of that 5 per cent., does it not?

A. I don't know. I am not familiar enough with the chemical end of it to tell you. I don't think so. They come from the lighter oils; all these finer products come from the light oils.

By Mr. MATHEWSON:

Q. Mr. Kirby has asked you if you did not use this coal tar in your own products, and you said yes. You use it in refining the products which you sell, do you not?

A. Yes, or in saturating paper, one or the other.

Q. And you sell those products?

A. Absolutely. That is the reason we use it.

Q. There are buyers of coal tar besides yourself, are there not?

A. Yes, sir.

Q. You are in competition with them, are you not?

A. We are.

Q. Do you know of any others paying a higher price for coal tar in the City of New York than yourself?

Mr. KIRBY: Objected to.
The MASTER: Hasn't that been asked before?
Mr. MATHEWSON: Very good.

EDWARD H. WARDWELL, a witness called on behalf of complainant, in rebuttal, being first duly sworn, testified as follows:

Direct examination by Mr. MATHEWSON:

Q. Where do you reside?
A. In New York; New Jersey and New York.
5700 Q. Are you connected with the Barrett Manufacturing Company?
A. I am.
Q. What is your position?
A. I am secretary of the company and manager of—my principal position in that company is as the manager of ammonia department.
Q. How long have you been in that business?
A. Thirty-five years; thirty-six, probably.
Q. You are familiar with the contract with the Consolidated Gas Company?
A. Yes.
Q. It appears that the Consolidated receives 28.83 cents per gallon for its ammoniacal liquor per ton of coal carbonized.

Mr. KIRBY: Is the contract based on that?
Mr. MATHEWSON: Yes, it is based on that, I think.

The WITNESS: Well, not directly; it is based on a certain yield, the net price received by them depends upon the amount of ammonia they succeed in giving us per ton.
Q. Sulphate of ammonia?
A. Equivalent to sulphate of ammonia.
Q. And it appears they receive 1.36 cents for ammoniacal liquor per pound of sulphate?
A. I suppose that would be correct. It varies. The settlement varies according to the price of sulphates.
Q. But as an average price?
A. Yes, sir.
Q. Assuming that to be correct, I want to ask you whether that is a fair price for that liquor?
A. I consider it a very full market price.
Q. In the City of New York?
A. Taking into account the form in which we receive the liquor and the expense we have for collecting it and so forth.
Q. Now, you take that liquor on a chemical test, do you not?
A. Yes.
Q. Showing the actual ammonia as indicated?
5701 A. The theoretical contents in the ammonia charged to us; not in reference to what we can take out practically.

Cross-examination by Mr. PAGE:

Q. Are you the Mr. Wardwell who was connected with the Standard Oil Company?

A. I beg your pardon?

Q. Are you the Mr. Wardwell who was connected with the Standard Oil Company?

A. No, I am not, unfortunately.

Q. Was he related to you?

A. So remotely that I should not be able to trace it. I believe though they did come together somewhere near the time of the Mayflower.

Q. You say that this price which you pay for ammoniacal liquor to the Consolidated Gas Company is the fair market price. Is there a quotation anywhere in existence of the market price for ammoniacal liquors?

A. I don't think there is. I don't know of any.

Q. What do you mean by market price? How do you arrive at it?

A. I arrive at it, that I think that is as much as other people pay. It is as much if not more than I individually am paying outside of New York.

Q. What prices do you pay for sulphate of ammonia?

A. In this contract we pay for the ammonia, a sufficient quantity of ammonia to represent a pound of sulphate of ammonia, a certain price according to the market value of sulphate at that time for that month; it rises and falls.

Q. What was the market value of sulphate of ammonia in July, 1905?

A. That I have not the figures of here. I do not remember.

Q. What was the price of it in November, 1905?

5702 A. I couldn't tell you, in the neighborhood of three cents.

Q. How near three cents?

A. It may have been a little over or a little under three cents. I cannot tell. It varied frequently.

Q. Was it as high as 3.18 cents?

A. I think it was at one time.

Q. During the year 1905?

A. If my memory serves me, I should think it was during 1905 that the highest price was reached for several years. However, I am not positive about those dates.

Q. You say you fixed your price here according to a theoretical test?

Mr. MATHEWSON: No, he didn't say that.

Q. What do you mean by a theoretical test?

A. I mean a test which shows the theoretical value of this liquor, every bit of it; and a test which also shows——

Q. What is the standard of ammoniacal liquor?

Mr. MATHEWSON: Won't you let him complete his answer?

Mr. PAGE: Certainly. I will withdraw the last question until he completes his answer, if he has not completed it.

The WITNESS: This test also indicates the presence of the amount of material which is reckoned as ammonia which is not ammonia, which we have to get rid of, but the Gas Company gets the benefit of that. It is known as the distillation test, made by their own chemist.

Q. A distillation test is the exact test for ammonia, isn't it?

A. Exact test for the contents of the ammonia contained in the ammoniacal liquor; what is known as the distillation test is inaccurate.

Q. Of the ammonia that is in the ammoniacal liquor?

5703 A. And of the alkaloids which are similar to the ammonia, they are also present; they are counted as ammonia, but they are not ammonia.

Q. How do you get, by distillation, the alkaloid?

A. Because they are very similar in character to ammonia. They are distilled off.

Q. What other alkalies are there that would evaporate by distillation that you find by this test?

A. Ammonia and pyridine are the only volatile substances.

Q. In this distillation test, did you distill the ammonia over sulphuric acid?

A. No, sir; nothing of the sort.

Q. How do you do it?

A. A measured quantity of ammonia is placed in a flask with a certain quantity of lime or caustic soda sufficient to decompose all the salts of ammonia contained in the liquor. The great bulk of the ammonia contained in the ammoniacal liquor from the gas works is in a compound form, carbonates and sulphides and so on, and by this distillation those forms are broken up and the ammonia is carried over into sulphuric acid and converted into a sulphate to determine the exact amount of the ammonia. Your question, as asked, whether it was done over sulphuric acid, did not seem appropriate. I could not answer it that way.

Q. Now, this is a very simple operation, isn't it, this distillation test?

A. Simple, but it has to be conducted by very intelligent and careful men to be accurate. A matter of a half a pound represents 50,000 gallons.

Q. The price the Consolidated Gas Company is receiving for its ammoniacal liquor is determined by this test?

A. The quantity which they are to be paid for is dependent upon that.

Q. And the quantity regulates the price because if there is a certain percentage of ammonia in the ammoniacal liquor then

5704 they receive a certain price for it?

A. Yes.

Q. So this test really determines the price they shall receive for their ammoniacal liquor?

A. I should say it came back to that.

Q. And you, the purchasers, are the ones that make this price?

A. No, sir; the Gas Company makes it in their own laboratory with their own chemist. Dr. Elliott has the supervision of that,

and I take for my own protection against the Gas Company an average sample of the liquor received from them during the year and send it to analytical chemists and take their tests.

Q. Then you wish to change your testimony which you gave on direct examination that the price was governed by a theoretical test that you took?

A. Oh, no, I didn't say that. I said the Consolidated made the test. I expressly said—made in the laboratory of the Consolidated Gas Company.

Q. My recollection may be wrong or yours may be. At any rate, the testimony is there and it will show.

A. Well, that is w-ong, because I don't make the tests.

Q. Now, this test which you have spoken of is the exact process of the manufacture of sulphate of ammonia?

A. No, sir; not exact. It is, in a way.

Q. Wherein does it differ?

A. Only in the manufacture of sulphate of ammonia— —

Q. Well, with the exception that in making the test you use a very small quantity, and in manufacturing you use a large quantity?

A. Yes, we use a large quantity and a small quantity of lime in manufacturing sulphate of ammonia. The volatile ammonia salts would be driven over and decomposed in the saturation of the acid, and it wouldn't be necessary to do it with lime as is done in this test.

Q. Then the manufacture of sulphate of ammonia is a simpler operation than this test?

A. In the plain operation of it, yes. None of them are
5705 very simple.

Q. I said more simple.

Mr. Mathewson: And the witness said "none of them are very simple."

A. I do not consider it a simple operation to make the test you speak of. The test by which the value of liquor is determined. But the general principle of the operation is the same.

Q. It is not very intricate; it is a simple matter of distillation?

A. It is distillation.

Q. Any man that can light a lamp or build a fire under the flask, can set the thing going and can distil, can he not?

A. Yes, he can. There are lots of them do it.

Q. There is no intricate machinery that has to be handled in making the test?

A. There is some very good machinery, some very good apparatus in order to do it successfully or properly.

Q. Now, having ascertained that sulphate of ammonia, will you please take the price that you have given and give us the operation by which you arrived at the price you are to pay the Consolidated Gas Company for its ammoniacal liquor?

A. Well, the test as applied by the gas company determines the amount of ammonia, the percentage of ammonia per gallon of liquor. It determines it by finding out how much sulphuric acid the ammonia in a gallon of liquor will utilize. Upon that I base a calcu-

lation as to how many pounds of sulphate of ammonia can be obtained per gallon of liquor, and we take so much per pound for that ammonia. If they deliver, say 50,000 gallons of liquor which will by test show a product of six ounces or seven ounces or eight ounces of sulphate of ammonia per gallon, the total figures
5706 up so many pounds of sulphate and we pay for that.

Q. Do you figure, then, how much you pay per gallon of the ammoniacal liquor?

A. No, I could figure it, but I never did.

Q. I mean when you pay for it?

A. No. Yes, certainly; the bill is rendered for so many gallons of liquor, so many ounces and strength equal to so many pounds of sulphate of ammonia and that is what we pay for. Of course, the gallons of liquor have to be taken into account, but I came near answering what I did not mean. I did not take into account the value per gallon. We do not figure it that way.

Q. How do you fix your value of your sulphate of ammonia?

A. The market price.

Q. Where do you go to obtain the market price?

A. We obtain the price from the brokers and dealers, importers of sulphate of ammonia in this market——

Q. And do you send around yourself or is the*ir* some price current, or a trade paper?

A. Well, this drug journal reports the prices of sulphate of ammonia. If you were buying it you would pay probably a pretty good price, but we send to the trade and they give us an average price during the month, and——

Q. You give your quotations?

The MASTER: You do not let him finish, Senator.

The WITNESS: We take the quotations given us by other dealers and it is part of the contract, I believe, with the gas company, that we shall deal with the gas company on the basis of the average price as determined by the actual business done during the month, and that we learn from what we do ourselves and also what the
5707 importers do. They give us their price and we make up our reports on that. The gas company has the right to verify that, and can verify it at any time by going to the market.

Mr. PAGE: I would like to strike out the last part of it. It may be interesting, but I think it is entirely immaterial and irrelevant as to what the gas company can do.

The MASTER: Strike it out.

Mr. MATHEWSON: Exception.

Q. Are you through with your answer so that I can propound another question?

A. I am, sir. I won't talk so much the next time.

Q. Now, you give your quotations yourself, don't you, to this drug paper, the *Oil, Paint and Drug Reporter?*

A. I do not. I do not think they come to us for quotations. They may, possibly.

Q. And yet you are the largest manufacturer in the United States on those particular things, is that right?

A. I have not stated any such thing as that. We are not.

Q. Well, I supposed that you would agree with the man that was on the stand last time.

Mr. MATHEWSON: Of coal tar. That is quite another proposition.

The WITNESS: That is very different.

Q. Well, if you will allow me to finish a question as well as you finish an answer—I say he testified in regard to that, in regard to coal tar, that you were?

A. Yes.

Q. Is that the only particular in which you have this pre-eminence?

A. I don't know anything else that we sell except coal tar and ammonia; coal tar in its various forms and products.

Q. What about your ammonia, you are a very large pur-
5708 chaser of that?

A. The Barrett Company manufactures ammonia products only here in New York. They manufacture tar products all over the country.

Q. And so far as the New York market is concerned, you are a pretty large dealer, aren't you?

A. Yes, sir.

Q. Then when we come to the New York conditions that we have heard of so frequently, your company and their price would have quite a controlling effect on the market, wouldn't it?

A. Well, it might.

Q. Are you familiar with the prices of sulphate of ammonia as late as November of last year?

A. I do not follow the prices of sulphate of ammonia very closely. I am not manufacturing any sulphate of ammonia at the present time and my department of the business is not selling any sulphate of ammonia.

Q. Well, are you the man that fixes the price that has to be paid to the Consolidated Gas Company for its products?

A. No; I cannot say that I am. The information comes through the regular office channels, and I do not see it half the time.

Q. Who is that man?

Mr. MATHEWSON: The contract in evidence in that regard regulates the prices.

Mr. PAGE: It does not show the man who has to fix it.

Mr. MATHEWSON: It has been in force for years, and is in evidence.

Q. Are you familiar with *Newbigging's Hand Book for Gas Engineers and Managers?*

A. I don't think I ever saw it.

Q. A very interesting book——

Mr. MATHEWSON: But not very accurate.

5709 Mr. PAGE: Not for the purposes of the Consolidated Gas Company.

Mr. MATHEWSON: Not for any purposes.

Q. I call your attention to this: "The manufacture of sulphate of ammonia from the ammoniacal liquor is becoming general in gas works, and properly so, as the process is both simple and profitable. * * * The apparatus required in its manufacture is neither complicated nor costly; the process is free from danger (though fatal accidents have occurred through the carelessness or the use of imperfect appliances) and an intelligent laborer can learn it in a week's time."

Do you agree with that statement?

A. Not wholly, no.

Q. You do in the main though?

A. Well, I should think that somebody might write that that didn't know much about it.

Q. Have you ever heard of Thomas Newbigging?

A. No.

Q. Do you consider yourself superior in the knowledge——

A. No, not at all.

Q. Of chemistry?

A. Only that statement is put in such general terms that it does not seem to me to have much value.

Q. No, it would not be valuable to a manufacturer of sulphate of ammonia to have the gas companies going into the business of manufacturing it; is that what you mean?

A. No. That didn't occur to me.

Mr. MATHEWSON: I object to that. It is hardly worth while to spread that on the record.

Cross-examination by Mr. BURR:

Q. What are you paying to-day for ammoniacal liquor?

A. I can't tell you. I haven't seen the basis of percentage for last month. The accounts are settled once a month, based upon
5710 the average price of sulphate during the month. I was away from business and I did not see it at all.

Q. Does that suffer much of a fluctuation in price?

A. Well, it fluctuates. It is hardly ever exactly alike.

Q. About how high or how low from a given figure?

A. The highest I remember for several years has been about 3.18 to 3.20, and the lowest for two or three years I should say at least has been 2¾.

Q. What is the highest price you have ever paid the Consolidated Gas Company for its ammoniacal liquor?

A. I can't tell you.

Q. Do you mean you cannot recall?

A. No, I cannot recall.

Q. Did you have anything to do with the making of any of the contracts with the Consolidated Gas Company for the purchase of this liquor?

A. Yes. I had something to do with their negotiating those contracts, arranging the terms, the method of test and all that.

Q. Do you remember the first contract you made with the Consolidated Gas Company?

A. It is a good while ago.

Q. Did you make a contract in 1899 with the Consolidated Gas Company?

A. Very possibly. I do not remember the date.

Q. Has it been your object to make the contracts for a year or for a series of years?

A. Usually for five years or ten years we used to make them.

Q. What has been your object in making a contract for five years?

A. Because we had to expend a very large amount of money in plants, machinery and facilities for handling the business, and if we had only a contract from year to year our works would be put up at auction every year for another bidder.

Q. And if you get an agreement at a low price you want
5711 to hold on to it as long as you possibly can?

A. Naturally. We want an agreement at good prices. We want to preserve our plants. I have lost two or three plants in my own individual experience b[illegible]sing the contracts. It became scrap iron where I had an expensive plant.

Q. You made a contract, I understand, on June 24th, 1898, which was continued until June 12th, 1903; is that correct, to the best of your recollection?

A. I presume it is. I don't recollect dates, but I presume that is correct.

Q. You do not recall the price fixed, do you now, by the contract?

A. I think the price fixed at that time was the price of the present contract, at least, the contract that is running now.

Q. And the contract which covers the coal tar also covers the ammoniacal liquor, does it?

A. That is a separate contract. I never had anything to do with that.

Q. You hadn't anything to do with the coal tar?

A. No.

Q. Mr. Carter testified, on page 977 of the record, that the average price received during the year 1904 was 1.34 cents per pound of sulphate. Does that agree with your recollection?

A. I should think that was right; it must be right if he states it.

Mr. MATHEWSON: I think that is 1.36. If it is 1.34 I think it is a clerical error. You will find a number of figures in going through the record where slight errors have been made. I merely call your attention to it, because I think that is the fact.

Mr. PAGE: It is 1.34 in Exhibit 94, so if it is to be corrected in the testimony it should be corrected in the exhibit.

Mr. MATHEWSON: Very likely one was read from the other in answering the question. It is simply my recollection that
5712 it is 1.36; that is all. It is not a material difference. I may be wrong.

Q. It was also asked, "What average price per gallon or per ton of coal carbonized did you receive for coal tar for the same period?

A. 28.59 cents. Q. Per pound? A. Per pound of coal carbonized." Do you recall anything about that?

A. For ammonia?

Q. No, for coal tar?

A. I don't know anything about it.

By Mr. PAGE:

Q. The production of ammonia in the United States and its use has very largely increased, hasn't it, in the past few years?

A. Yes.

Q. And in the six years from 1898 to 1904 you know there has been an increase of 350 per cent. in the product.

A. I know it was a large increase, because the coke oven industry was getting under way in those years and is accountable for pretty much all the increase in the amount of sulphate manufactured. There is very little manufactured by the gas companies in this country.

Q. And the price has continued to rise, hasn't it, notwithstanding?

A. It has remained very firm, and has been strong in spite of the increase of sulphate of ammonia, fertilizing industries taking more sulphate of ammonia than we anticipated.

Q. Do I understand that this price that you have given of 1.34 or 1.36 is per pound of sulphate, in the question that was read to you by Mr. Burr?

A. That is what it figures out that we paid. It is for ammonia enough, a sufficient quantity of ammonia to make a pound of sulphate of ammonia. We get it in the form of a liquor containing about 1 per cent. of ammonia—1 to 1½ is a maximum.

5713 Redirect examination by Mr. MATHEWSON:

Q. And the ammoniacal liquor that you thus obtain you have stated you had to manufacture and convert into the products which you sell?

A. Yes.

Q. Now, the quotation has been read to you of 3 three cents or such a matter for sulphate of ammonia. Isn't that the manufactured product?

A. That is the finished product ready for market in boxes and barrels, whatever it is shipped in.

Q. It is not for enough ammoniacal liquor to produce that sulphate?

A. No, sir; the acid has to be purchased and other things.

Q. Now, as a matter of fact, I will ask you if the figures specified in the contract to which counsel has called your attention was, at the time of the making of the contract, fair in your judgment?

A. I consider that very fair. In fact, the utmost that I could advise my company to pay, that is what I was guided by.

Q. Is there not a sliding scale which gives the company an advantage if they show a higher grade of ammoniacal liquor or if the sulphate shows a higher price in the market?

A. There is a sliding cost on sulphate; it goes up; they get proportionately more.

Q. And if their liquor is richer they get more, it means the same thing?

A. There is a limit to the strength of the liquor. I don't think the old contract specifies that they shall have any advantage in the strength of the liquor.

Q. They took an average strength?

A. It was agreed that if the liquor went below a certain strength, what is known as six-ounce liquor by distillation test, that then there should be some negotiation, some reduction of value, because the——

Q. As a matter of fact, sulphate of ammonia is imported, isn't it?

A. Very largely.

5714 Q. And you are in competition with the foreign sulphate?

A. All the time. It regulates the price.

Q. Do you make sulphate of ammonia largely, or is the product that you make from this ammoniacal liquor anhydrous?

A. I am manufacturing anhydrous and strong aqua-ammonia. For the last year or so I have not manufactured any sulphate.

Q. Now, in testing ammonia, isn't it a very delicate operation, if you desire to get results—testing am-oniacal liquor?

A. Testing the value?

Q. Yes, sir.

A. It is an operation which requires the very greatest care and skill, which I would not entrust to anybody but a skilled chemist.

Q. And as to the manufacture of the raw product to produce your products, doesn't that require a man of skill and experience to get good results?

A. Well, I don't think they could be done by a man who was not skilled; in fact, that is what I am paid for.

Q. You would not want to trust a common laborer to do that and expect good results, would you?

A. The successes in that line of manufacture depend very largely upon the character of the apparatus and the handling of the business obtained by the director of the plant.

Q. And has your company in existence a large and expensive plant for the purpose of producing these products?

A. Quite large. I suppose about $300,000 we have invested in the ammonia plant alone.

By Mr. BURR:

Q. Your object in buying this am-oniacal liquor is to get it as cheaply as you possibly can, isn't it?

A. Naturally.

Q. Having such an expensive plant?

A. And yet, that is not quite true, because we have aimed

5715 always to pay a price so fair and so full that we would not be liable to be beaten by competitors. It was for the safety of our business to pay the full values. Those have been my instructions, in negotiating these contracts, from the officers and directors

of the company, to pay just as much as I could possibly recommend them to pay.

Q. But, so far as this record shows, there was no competition in 1889 or 1901, when you arranged the continuance of that old contract?

A. I don't know what the competition was. They didn't tell us who were bidding against us. There were bids against us, I believe.

Q. You have no knowledge yourself that there was any competition?

A. The officers of the Gas Company have never been so frank with me as that.

GEORGE W. DOANE, called as a witness in behalf of the complainant in rebuttal, being duly sworn, testifies as follows:

Direct examination by Mr. MATHEWSON:

Q. Mr. Doane, are you an officer of the National Coal and Coke Company?

A. I am president.

Q. Which is it, "Coke and Coal" or "Coal and Coke"?

A. "Coke and Coal."

Q. That is the company, is it not, of which the Consolidated Gas Company owns all the stock, which has been referred to as the Carting Department of the Consolidated Gas Company?

A. It is.

Q. Does it take the coke of the Consolidated Gas Company and sell it?

A. It does.

Q. So far as the Consolidated does not use its coke in its water gas apparatus.

A. Yes, sir.

Q. It has been put in evidence as to the prices that were
5716 obtained for coke by the Consolidated in 1905. In addition to those prices which are paid to the Consolidated Gas Company by the National Coal and Coke Company, the National Coal and Coke Company also pays its profits and dividends to the Consolidated Gas Company, does it not, except such amounts as may be reserved for working capital?

A. It does.

Q. So that ultimately the Consolidated Gas Company gets the benefit of all the profits of the National Coal and Coke Company?

A. All the profits that they have.

Mr. PAGE: I suppose this can be reprinted in your brief, Mr. Mathewson. It is entirely argumentative.

Mr. MATHEWSON: We will see.

Q. Now, a criticism has been made by Mr. Edgerton in reference to the price received for coke in the City of New York. I want you to state what efforts, if any, the National Coal and Coke Company, through yourself or under your direction, have been making in the sale of coke and as to the possibility of getting higher prices for it than you are getting?

A. As I understand it, the National Coal and Coke Company was organized for the purpose of increasing the market for coke. And, of course, as we increase the market for the coke, we are able to get a better price. But the price of coke is regulatd by the price of anthracite coal. If we get the price of coke too high, we cannot sell it. We have got to confine it at a point at which the local public will take coke in preference to anthracite coal, and our endeavor is to familiarize people who are not using coke with the use of coke and with the advantages of it, and to assist them to make experi-
5717 ments which will induce them to use coke. We do that by the medium of canvassers and salesmen, by advertising and printed matter and by assisting them in making experiments. We even go so far, where we feel encouraged, to give them coke and to assist them in making the experiments. And where their boilers are not suited for the use of it, we go to the extent of advising them to change their grate bars, so they will be enabled to burn the screenings to the best advantage, to get the most economical results from it.

Q. Are these efforts to familiarize the public with coke and induce them to burn it continuous?

A. They are.

Q. Will you state what the disadvantages are of coke as compared with anthracite, in view of the suggestion that coke ought to sell for substantially anthracite prices.

A. Coke is a free burning fuel; it is porous in its character, and as it is ordinarily used in the same appliances that are used for anthracite coal, it burns so much more freely and rapidly that the consumer cannot get the same economical advantages from the use of coke that they can from coal, and that is what makes it difficult to install coke. As fuel is used in domestic houses and even in business concerns, it is more or less under the control and direction of employees, and they will not and cannot be made to take the amount of supervision or the regulation of the drafts of coke which enable it to burn with economical advantage, and the result is that coke has got to be marketed and always will be in New York City at a materially less price than anthracite coal. There are other disadvantages about coke. Coke is more bulky to store. It is more difficult to handle, and all of those work against the installation of coke and make it more difficult to market it.

Q. If the draft is left on, as you call it, coke being a quick burning fuel, what is the effect on the grate bars?

5718 A. You have an intensely hot fire and the result is that the grate bars and bricks are speedily melted down. We often have consumers who give up the use of coke and give that as the reason for it, that they have ruined their furnaces and stoves, and will not use it any longer.

Q. So as to furnaces, you can load up a furnace with anthracite coal, can you not, so it will keep the fire in all night?

A. Very difficult to do it.

Q. I am referring to anthracite coal?

A. Yes, with anthracite coal, yes.

Q. How is it with coke?

A. It is very difficult to do it with coke. It requires the closest kind of regulation, and careful attention, so that the fire will last over night. I have tried it in my own house during the coal strike, and found it of the utmost difficulty to do it by giving it the most careful personal attention, and in the average house they cannot do it; and that militates against its use for domestic purposes.

Q. Now, Mr. Doane, there is at present a shortage of coal in New York, is there not, and coke, by reason of the coal famine in the west?

A. There is a shortage of bituminous coal.

Q. On account of the coal famine in the west it is being rushed in that direction?

A. Yes.

Q. Has that rendered it possible for you temporarily to make any advance in the price?

A. Yes, sir.

Q. How much?

A. We are selling it now at $3.35.

Q. That is 10 cents advance?

A. That is 10 cents advance within the last month. The previous advance was in October, 1905.

Q. What is going to be the effect on the coke market and the price to be received for coke by throwing on the market the product of the Astoria unit when it is in full operation?

5719 A. It is going to be an extremely difficult matter to market the coke for anything like the price we have been getting.

Q. Do you think it will be possible, so far as you can see, to market coke at any higher prices than were received in 1905?

Mr. BURR: Objected to as incompetent, irrelevant and immaterial, being merely a conclusion of the witness and purely hypothetical and not in rebuttal to any evidence that has been presented here.

Mr. MATHERWSON: Yes, Mr. Edgerton testified that we ought to get, I don'- know how much, for coke, just as much as anthracite coal, and all that.

The MASTER: I will allow it.

Mr. BURR: Exception.

A. Not in any large quantity.

Q. Is it not a fact that what is known as free-burning anthracite sells for less than normal anthracite?

A. I don't think here in New York there is much difference between the free burning anthracites and the harder grades of anthracite. I think I am accurate about that. I think that the price ruling here by the retail dealers is a uniform rate, $6.50 a ton at the present time.

Q. When your company receives coke from the Consolidated Gas Company it has certain expenses in connection with it before and in connection with the sale, has it not?

A. Oh, yes, large expenses.

Q. How do results, so far as the Consolidated Gas Company, compare in reference to its receipts from coke as a residual since the

organization of the National Coke & Coal Company, with the results so far as the Consolidated Gas Company before that? That is, are they now more favorable or less so?

5720 Mr. BURR: Objected to as incompetent, irrelevant and immaterial, not being proper rebuttal.

Objection overruled. Exception.

A. The company, as I said, was organized for the purpose of widening and broadening the market for coke. Since then we have marketed all the coke that the Consolidated Gas Company has for sale. At the time of the organization of the company there were large quantities of coke stored in all the stations; in some of the stations they were very much congested; at one time we had between thirty thousand and forty thousand tons of coke in storage. That works to great disadvantage, because it means additional handling to the Consolidated Gas Company, trimming of piles, the waste of coke from breakage and disintegration leading to a much larger percentage of screenings and breeze, which is sold at a reduced price.

Q. The result of the work of the National Coal & Coke Company?

A. And the selling price of coke has been raised from $2.75 to $3.35 in that time.

Q. The result of the work of the National Coal & Coke Company is the better selling of the coke and at a higher price per ton?

A. It has added largely to the profit of the coke business.

By Mr. BURR:

Q. And to the credit of the president of the company, I presume?

Mr. MATHEWSON: Unquestionably so. That is all.

Cross-examination by Mr. PAGE:

Q. Besides being president of the National Coal & Coke Company, what are you other offices?

5721 A. I am president of the Northern Union Gas Company, vice-president of the New Amsterdam Gas Company.

Q. What about the Central Union?

A. I am not an officer in that company.

Q. Are you besides being vice-president of the New Amsterdam Company, the general manager of that company?

A. Vice-president and general manager.

Q. How many canvassers and salesmen did you employ in the year 1905?

A. I should say they averaged four or five.

Q. Did you pay them anything?

A. Certainly.

Q. Will you take the State's Exhibit U for identification and find out under what item that payment is given?

A. They are all under the head of expense.

Q. Now, let us analyze that head of expense. How much salary did you get?

A. $500.
Q. $500?
A. Yes.
Q. Were your canvassers paid in proportion to the salary paid to the president?

Mr. MATHEWSON: Are you claiming he has been extravagant?
Mr. PAGE: It may be. That depends entirely.

Q. How much of that $13,830.10 of expenses was paid——
A. Mr. Brewster's salary, I think, is—I may not be strictly accurate, but probably near enough for your purposes; I did not fortify myself for that—I think he is paid $2,000 a year.

Mr. MATHEWSON: Who is he; what is his office?
The WITNESS: He is the general man in charge of the office; he spends half to three-quarters of his time outside visiting customers and that sort of thing. Then Mr. Miller is paid a salary of
5722 $1,200 a year. And there is another young man whose name I do not catch who is paid $12 a week. Then Mr. Fox, at 42nd Street Station, I think, is paid $3 a day, and then we have another man whose name I do not catch whose salary, I think, would be between $2.50 and $2.75 a day. That covers the four men.

Q. You, of course, devote little of your time to this National Coal & Coke Company?
A. I give a good deal of it to it; part of every day; particularly at the present time.
Q. Were any of these men that you have spoken of, canvassers?
A. They all act in a canvassing capacity; some of them, in addition to their salaries, get a commission for all business they bring in. And then, in addition to that, I might mention, too, that we have a standing offer of 25 cents a ton as a commission to certain men who are not in the employ of the company, for business which they influence and divert towards the company. We have a Chinaman, for instance, who has done very good work among the Chinese laundries; we pay him a commission of 25 cents for every ton of coke that he places on the books. That, I think, is the same commission that the coal people pay for the sale of coal.
Q. Well, all of the expenses, I suppose, of your office amounted to $13,830.10 a year?
A. That is right.
Q. In 1905?
A. Yes, I presume that is right.
Q. That includes, you say, salaries for your canvassers, the officers' salaries of the company and, I suppose, stationery?
A. And stationery.
Q. And books?
A. And books.
Q. And all the ordinary office expenses?
A. And all the ordinary office expenses.
5723 Q. Doesn't it include some rents?
A. No, we do not pay any rent in that; it is a separate item there, is it not?

Q. I see $1,800, so it does not include that?
A. No.
Q. You say you have also sent out very largely advertising matter and circulars?
A. Yes, sir.
Q. Did you send out any in the year 1905, or is it something you have recently begun?
A. Yes, we sent out in 1905, I should say, two or three hundred thousand.
Q. And was not that the first time that you had sent out any?
A. No, we have done that for a number of years, several years. I think we have done more of that perhaps within the last two years than before that.
Q. What were those, postal cards that you mailed to people?
A. No, they were printed matter calling attention to the advantage of coke. They were not in any sense postal cards at all. Calling attention to the advantages where it was for sale, what could be done with the fuel, and calling attention to the price and inviting people to communicate with the office and give us an opportunity of demonstrating to them the advantage of coke.
Q. How did you distribute those, through the mail?
A. They were put in every gas office, and as the receipted bills were sent out to the consumers throughout the district, they were inclosed with their bill, besides being mailed direct from lists that we had prepared. But the advantage to the coke company in having them sent out that way was that we saved postage, and we got communications in the hands of the people all over the city.
Q. I noticed that this extensive advertising in the year cost $111.25. That included the cost of the printed matter and postage?
A. No, I do not think any of that went into that. I think that advertising is what the term advertising would mean, some-
5724 thing paid for a newspaper insertion or something of that character.
Q. Then are we to charge up this to expenses?
A. That printing would also go into the expense item.
Q. That would also go into the expense item of $13,830.10?
A. Yes.
Q. In so far as you sent out matter in the mail, did you put a 1-cent or a 2-cent stamp on them?
A. I should imagine the Consolidated Gas Company would have to put a 2-cent stamp on its letters.
Q. I am not speaking of the Consolidated Gas Company. You said you also sent out from a list yourself?
A. Yes, those would go in a 1-cent envelope, those containing our own matter exclusively.
Q. Have you got any of those circulars with you?
A. Not with me, no. I would be glad to send you one if you would like to see it.
Q. You say the price of coke is dependent somewhat upon anthracite?
A. Entirely so.

Q. That is, if one rises and falls the other rises and falls?

A. Not entirely that, because an increase of 25 to 50 cents in anthracite coal would not make any appreciable difference in the market for coke, but if anthracite coal should cost $10 a ton, we, of course, would get a very much increased price for our commodity. But an increase of 25 to 50 cents would not make any difference, I do not think.

Q. Then you do come in competition with anthracite coal?

A. Entirely so, entirely so, entirely so.

Q. What has the shortage in the bituminous market got to do with the increase in price?

A. It has reduced the amount of coke which we have had for sale, consequently as we have had less coke for sale we can insist upon getting an increased price.

Q. That is, there being a shortage in the bituminous coal in the west, it has reduced the amount of coke which you handle?

5725 A. Produced here in New York City. We have less coke to handle.

Q. Do you mean to say that the Consolidated Gas Company has been making less gas and using less coal by reason of this shortage?

A. They have been using less bituminous coal and making less coke.

Mr. MATHEWSON: We are very seriously crippled at our coal gas plant now.

Q. Now, what is the difference between anthracite prices and coke prices?

A. Anthracite coal, just at present, is selling for $6.50. In April, you will probably remember, the coal people reduced their sel-ing price of coal.

Q. Yes.

A. I think last April it was $5.75. Then they added ten cents a ton a month until they got to $6.25; then it stood at that price until recently, and now the anthracite people, during the time when carting is difficult in the street, charge twenty-five cents more, so the selling price at the present time is $6.50. The price we are getting now is $3.35 for a load, which is what we call a chaldron.

Q. Yes, fifteen hundred pounds?

A. It does not weigh fifteen hundred pounds; as a matter of fact, it weighs nearer fourteen hundred than fifteen hundred, but in round numbers we call it fifteen hundred pounds. I think an average of eighty thousand loads of coke weighed fourteen hundred and forty pounds or fourteen hundred and fifty pounds. What does it amount to per ton?

Q. How much is it per chaldron?

A. $3.35. If the chaldron weighed fourteen hundred pounds it would be $4.71 per ton, and if it weighed fifteen hundred it would be $4.40.

Mr. MATHEWSON: Long or short tons?

The WITNESS: Short ton, two thousand pounds.

5726 Q. I understand that you anticipate that the manufacture or starting of the Astoria plant is going to break the coke market?

A. It is going to make it more difficult to market coke at anything like the present prices.

Q. Do you expect the National Coal and Coke Company will handle the Astoria coke?

A. I think they will sell what coke is sold at retail in New York; they have all the plant and all the equipment, I imagine they will.

Q. The ovens of the Astoria company will produce a higher grade of coke, will they not, than those that are being used at the Fourteenth and Forty-second Street plants?

A. I hope so, but at the present time the grade is very inferior.

Q. Well, that is a new plant, just starting up?

A. Yes, I imagine it will be better coke later on, but at the present time there is a great deal of complaint about the coke. It is dirty and smoky and it does not give the satisfaction the old coke did. Some people have refused point blank to use it.

Q. Can this coke which is produced by you be used in the manufacture of iron at all, pig iron?

A. No, I do not think so, it is too porous for that, too soft.

Q. That manufactured by some other gas company is used in iron and it can be in copper and some other metals?

A. I do not think so. It may be that the Otto coke is used, but to a very limited degree; the Connellsville coke is what they want. It brings $7 a ton in the New York market, what little is sold. It is used for metallurgical purposes.

Q. Have you heard of the plan to build some large iron plant on the shores of New York Bay, in which will be utilized some of the iron ores from New Jersey?

A. No, that has not come to my knowledge.

Q. You have not looked into that as a possible field?

5727 A. We will, if there is an opening there, we will be after it. If there is any opportunity to market any coke there, we will be after it.

Q. In Astoria they will produce more coke by a great deal than is being produced now by the various companies on the Island of Manhattan, will they not?

A. Yes, sir.

Q. And you expect to be the selling agent. Have you made any investigation at all to see how you are going to dispose of this large quantity?

A. We are, we are working on this problem now. I am, that is the reason I made the remark I did some time ago.

Q. Before they entered into the building of this large plant which would make this large amount of coke, was any investigation made by you to see what you were going to do with the product?

Mr. MATHEWSON: This National Coal & Coke Company has been in existence since 1901 or 1902, and Mr. Doane is not an officer of the Consolidated Gas Company and the Consolidated Gas Company began the construction of the Astoria plant before the National Coal & Coke Company was incorporated. What the Consolidated Gas Company figured as to disposing of their product, Mr. Doane does not know, except it may be as hearsay from time to time.

Q. As the proposed selling agent of the stock of coke which is to be produced at Astoria have you received any information from the officers of the Consolidated Gas Company as to the places that you could dispose of this large amount of coke?

A. I have been looking around myself to find places.

Q. But I say, have any of the officers of the company com-
5728 municated with you the results of any investigation they may have made?

A. Yes, I have had conferences with them and am having them now.

Q. And is it your expectation to build up the sale of the coke of Astoria with this sending Chinamen around at 25 cents per ton and ways of that kind, or is there some large wholesale place that will take your product?

A. There will have to be built up a trade very much in excess of what John Chinaman uses. At the present time I have made no effort to market any coke outside the Island of Manhattan. Of course, contiguous to Manhattan there are Brooklyn and Jersey City and all the places that can be reached from the river and all of those we expect to tap, and we hope to get a class of trade here in New York that we never have had.

Q. Do you expect to furnish to the Long Island Railroad or Pennsylvania Railroad any of your coke?

A. Well, that is something that has been spoken of. We have for a number of years sold a large quantity to the New York & New Haven. The New York & New Haven have taken from us for a good many years. The Central are taking some now.

Q. Do you know anything about the price of coke in Jersey City?

A. We sell some coke in Jersey City, but as we cart from New York, and that involves the paying of the ferriage, etc., it makes the cost high; I could not tell you just exactly what we are getting for coke there; it is considerably in excess of what we get in New York.

Q. Have you any competitor in the coke business in the City of New York?

A. I would hardly style them as a competitor; there is a little lot of coke sold here which is brought from Camden, and there is some Pennsylvania coke sold here which is used for metallurgical
purposes that our coke, as I said before, is not suitable for,
5729 so I would hardly call them a competitor. It is used for that specific purpose. Outside of that, our coke has practically no competitor.

Q. The Otto coke you spoke of is sold to private consumers, is it not?

A. Very small amounts, a very small amount; there is a man over on the east side that has issued an advertisement as having that coke for sale, and we have tried to ascertain what business he was doing there, and we have not been able to locate but two consumers of ours that have used his coke, and one never duplicated the order. I do not think he does anything; he is a coal dealer over on the east side.

Q. Would it surprise you if that man gets as high as $5.50 per ton for his coke?

A. If he does, he does not sell much, if any, very little; he may sell a load or two and do something like that; we could get as much as that for ten or fifteen loads.

Q. More of the Otto coke is sold in Jersey City than here?

A. Yes, because they have a yard over on the Hackensack River, very likely.

Q. Do you know the price they are getting for their coke in Jersey City?

A. Only in a general way. They have two or three carts that are carting bagged coke in paper bags, that they sell for ten cents a bag, and I don't exactly know how much it weighs; I have the data at my office; they are doing a little business with tenement house people. They tried to introduce that same trade in New York City, and we were very glad to see them do it, because in New England they do some trade of that character. We have had in mind that there was a possibility of developing some of that trade in New York. They tried to introduce it in New York, but they have sold very little, and they have apparently been so discouraged at their efforts that they have stopped it. We have gone to those people who
5730 bought it, and they said they would not buy it any longer, that the people who bought it in bags were dissatisfied, and there was not anything in it, and so far as I know they are not doing any business here. But in Jersey City there is a different trade from what there is in New York, but I think they only have three or four wagons.

Q. At ten cents a bag, that would amount to six dollars per ton?

A. Yes, I should imagine it would be about that, but it is very expensive to handle it that way. We tried for several months to sell coke in that way, and we spent nearly $4.000 in making the experiments, and I think as the result of that $4,000 expenditure we sold not over 1,500 loads of coke.

Q. You have no idea of the extent of the business of the Otto Company in New York City, have you?

A. I think I have; I do not think they are practically doing anything here now.

Q. That being a relative amount, if they have sold since October, 10,000 tons, would you consider that a small amount?

A. No, I should think that was a pretty good amount. I know very well they have not done it.

Q. How do you know that?

A. We have men whose business—who are detailed for the purpose of following their wagons in New York, and the Otto people have tried to sell us coke. They have come to us and quoted coke as low as $2.95 a ton to me, and have been very anxious for us to take hold of it. There is quite a little Otto coke going into Brooklyn, but it does not come to New York. Of course, in Brooklyn at the present time we have no facilities for delivering coke there, so we are very glad to see them sell it there. I pass their yards every day and am familiar with the amount of coke which they have on storage and which they appear to be handling.

5731 Q. Now, I will ask you whether you know the price which is received for coke in Brooklyn?

A. The price in Brooklyn ranges from $3.50 to $4, according to the distance from the ferry, so I have been advised.

Q. Is that per load?

A. That is per load.

Mr. PAGE: That is all.

By Mr. BURR:

Q. Mr. Doane, do you buy or deal in any other coke than the Consolidated Gas Company's coke?

A. None whatever.

Q. Have you been president since the organization of this company?

A. No, it was organized in 1901, the beginning of 1901, and I became president, I think, in the beginning of 1902.

Q. Can you state what year you were the most successful in the operation of the business of this company?

A. I don't know that I know how to answer that. I think in the business——

Q. When did you begin to make more money during the time that you have been president?

A. The times we have made the most money was when we were handling coke for the railroad. The railroad trade was particularly profitable, because we had a station at 42nd Street, and the cartage from 42nd Street to the railroad station was a comparatively short one, and taken in trucks in large quantities it was very profitable, and there were a couple of years when the earnings of the National Coal & Coke Company showed more than in other years; but I personally do not judge of the success of the Coke Company alone by the money it is earning. It is by the results we accomplish in developing and extending the use of coke, that is the purpose for which it was instituted.

5732 Q. You organized that and it attends to the disposal of the coke of your own company, the Northern Union?

A. The Central Union disposes of its own coke.

Q. And who disposes of the Northern Union?

A. They do not make any coke; they buy the gas from the Central Union.

Q. How about the New Amsterdam?

A. They make no coke. It is a so-called water gas station.

Q. Did you attend to the disposal of the coke before the organization of this company by the Consolidated Gas Company?

A. Before the organization of the coke company?

Q. Yes.

A. No.

Q. Had nothing at all to do with it?

A. No.

Q. And the only experience you ever had was since you have been president of this company?

A. Yes. I ought to modify that. I was secretary and treasurer

of the New York Gas Light Company for a good many years and they manufactured coal gas entirely for a good many years and they marketed all their output of coke in New York, and as secretary and treasurer I did have general charge of that.

Redirect examination by Mr. MATHEWSON:

Q. The trade of the railway company was lost for what reason, do you know?

A. The installation of the electric plant.

Q. Now, with reference to delivering your product in Jersey City or Brooklyn, or anywhere outside of Manhattan, would that mean an additional investment in plant?

A. Yes, that would mean that we would have to have depots established at those points, which we undoubtedly will.

Q. What is the effect on coke of handling it, loading it and unloading it and transporting it by lighters and otherwise?

A. Every time you handle coke it breaks; that increases
5733 the percentage of screenings or breeze, which has to be sold at a very much reduced figure.

Q. So, in dealing with the sale of coke outside of Manhattan, you would have to obtain a large enough price to take care of the extra amount of capital and the extra cost of transportation and the extra amount of loss by breakage, and so on?

A. Yes.

Q. In reference to handling the Astoria coke, if that assumes large proportions, will that require an addition to your plant and facilities?

A. It will.

Q. At what price is the National Coal and Coke Company selling the coke to the consumer?

A. At the present time?

Q. Yes.

A. $3.35.

Q. In the Island of Manhattan?

A. In the Island of Manhattan.

Q. Now, you spoke about the Central Union coke. Were the conditions at the Central Union plant in the Bronx favorable or unfavorable for receiving a larger price than was received in Manhattan?

A. They have always been able to market their coke at a better advantage than we have downtown.

Q. State some of the reasons.

A. I think one of the principal reasons is that they manufacture a moderate amount. They have a large territory to supply, which is made up of a class of people that are somewhat different from those living in tenement houses downtown, although the character of that district now is changing in that respect. They also have an opportunity to market a good deal of coke among contractors and builders. It is a particularly desirable fuel to use in portable boilers, and one of our large sources of income down here is in that way. It is a quick fuel, and these portable boilers in the street can get up steam in a very few minutes by the use of coke, and it seems to be a very popu-

lar fuel among those classes of people and they have a large
5734 amount of trade in the Bronx, where the building interests have been active for a long time. Those seem to be sufficient to enable them to market this coke without any difficulty.

Q. And do they market it as a rule without storage and cartage?

A. And without storage; they are exceedingly well situated in that district. They load their coke from bins and the result is that their percentage of breakage is very much less than it is where it has to be transported on boats or on the water as taken out on elevators, etc.

Q. Do you know of any concern that is selling coke in large quantities in the City of New York to retail consumers at any higher price than you are obtaining for your coke?

A. There is none selling large quantities at any price.

By Mr. BURR:

Q. But they are, in selling in small quantities?

A. Small quantities, of course. Connellsville coke is sold here in small quantities at a very much larger price, but that coke I understand costs $5.35 on landing here.

By Mr. PAGE:

Q. That is an entirely different coke?

A. Yes, it does not compare with gas house coke, it is a different fuel entirely.

By Mr. MATHEWSON:

Q. Could this other coke to which you refer be sold in large quantities in your judgment, that is in such quantities as the Consolidated Gas Company produces, at an average figure higher than you sell yours?

A. No, it is impossible.

At 1.20 P. M. adjourned to 2.30 P. M.

5735 After Recess.

GEORGE W. DOANE resumed.

By Mr. MATHEWSON:

Q. Your attention was called to what coke was selling for in small lots or otherwise, as the testimony shows, in Brooklyn and Jersey City. Why did not the National Coal & Coke Company send its coke across the river and sell it there to get this price?

A. We had no conveniences in Jersey City for the storage of coke, and any coke we sent there would have to be sent from New York.

Q. How about Brooklyn, too?

A. And the long cartage and ferriage involved, etc., has never proved it to be an attractive trade to us for the price we could get; and the same reason applies to Brooklyn.

Q. Is there any coal-gas plant in Brooklyn in operation that you know of?

A. I am under the impression that there is no coke made there now.

Q. So that coke sold there would have to be transported from some other point?

A. Transported from a large distance.

Q. Yes. And do you consider that the company would get less if it went to the expense of transporting?

A. We would net less if we delivered coke over there than we would in Manhattan.

By Mr. PAGE:

Q. Do you know what the Kings County Company make?

A. Is that the South Brooklyn Company? They used to make coke, but not now. It is entirely a water-gas plant, if you mean that station down——

Q. Fifty-ninth Street?

A. Yes, way down there. They are not making any coke at all there now.

5736 By Mr. BURR:

Q. Is that also true of the Flatbush Gas Company?

A. I would not want to say positively about that.

CHARLES G. FRANKLIN, a witness called on behalf of complainant, in rebuttal, being duly sworn, testifies as follows:

Direct examination by Mr. MATHEWSON:

Q. How long have you known the plant of the Consolidated Gas Company at 44th to 46th Streets, west of Eleventh Avenue, in the City of New York?

A. Since 1876, I think.

Q. And for how long a period has the company occupied the land which is the bed of the projected 12th Avenue, and shown on Exhibit 48 btween 44th and 46th streets?

A. Since 1876 or 1877.

Q. Has that been fenced in and used by the company since that time?

A. It has been fenced in and used by the Municipal Company all that time.

Q. And subsequently by the Consolidated Gas Company?

A. Subsequently by the Consolidated Gas Company.

Mr. BURR: No questions.

Mr. PAGE: No questions.

5737 FREDERICK K. DOWN, a witness called in behalf of complainant, in rebuttal, being first duly sworn, testifies as follows:

Direct examination by Mr. MATHEWSON:

Q. Are you the manager of the 42nd Street plant of the Consolidated Gas Company?
A. Yes, sir.
Q. How long have you known the plant upon 41st and 42nd Street, west of 11th Avenue?

Mr. BURR: May I inquire what the object of this testimony is?
Mr. MATHEWSON: You threw in some suggestions or maps and so on, which purported to show that the company was not entitled to the use of this land, not entitled to it, and I think we discussed that the other day when the testimony was introduced.
Mr. BURR: I submit he cannot prove adverse possessions against the city by this witness or Mr. Franklin.
Mr. MATHEWSON: That is a matter of argument, of course.
Question allowed. Exception.

A. I have known it since 1862.
Q. Now, on Exhibit 48, there appears to be indicated a projected avenue between the bulkhead line and the bulk of the plot. For how long has the company been in occupation and enjoyment of that section covered by the proposed street?

Mr. BURR: I object to that question as incompetent, immaterial and irrelevant.
Question allowed. Exception.

A. Since 1870.

Mr. BURR: No questions.
Mr. PAGE: No questions.

5738 ALBERT RIBLET, a witness called on behalf of the complainant, in rebuttal, being first duly sworn, testifies as follows:

Direct examination by Mr. MATHEWSON:

Q. Are you the superintendent of the 14th Street plant of the Consolidated Gas Company, East River and 14th Street?
A. Yes, sir.
Q. I show you Exhibit 48 and refer to the blocks between Avenue D, Tompkins Street, 14th Street and 16th Street, and also refer to the plot on the westerly side of Avenue D, between 15th and 16th Streets. How long have you known that property?

Mr. BURR: That is objected to as incompetent, immaterial and irrelevant; on the further ground that the company, the complainant in this case, cannot establish its title to the property in question by such testimony as this witness is called upon to give.
Question allowed. Exception.

A. I have known that property since 1866.

Q. How long has the company been in the occupation and enjoyment of those three parcels which I have indicated?

Mr. BURR: Same objection to this witness's testimony all the way through.

Mr. PAGE: We join in the objection.

Same ruling. Exception.

A. I am positive since 1866.

Q. And been fenced in?

A. During that time always fenced in.

Mr. MATHEWSON: I have produced original deeds to the Manhattan Gas Light Company covering the 14th Street property,
5739 including the portions to which I have directed Mr. Riblet's attention, and offer them in evidence.

Mr. BURR: I object to these as being incompetent, immaterial and irrelevant.

Objection overruled. Exception.

Received in evidence and marked Complainant's Exhibits 297, 298, 299, 300.

THOMAS W. VARLEY, a witness called on behalf of complainant, in rebuttal, being first duly sworn, testified as follows:

Direct examination by Mr. MATHEWSON:

Q. What is your business?

A. Consulting engineer; electrical.

Q. How long have you been in the business of electricity?

A. Since 1888.

Q. Have you made tests as to electric currents, as to intensity and direction, etc.?

A. I have.

Q. How many years have you been in that business, or done that work?

A. That particular line since about 1895.

Q. In 1902, before the installation of the electric mode of propulsion on the elevated railways, did you make tests generally throughout the Borough of Manhattan as to electric currents and directions and power?

Mr. PAGE: Before you answer that I wish to object on the ground that this is not proper rebuttal. This is a subject that was taken up by the complainant in its direct case, and if they did not give such evidence as they wanted to at that time that is their misfortune.

We did not open up any new subject in our defense, but
5740 merely called witnesses on the testimony they had given.

Mr. BURR: I make the same objection. The testimony given here by the complainant was through Mr. Addicks, Mr. Simpson and Professor Humphreys, covering certain conditions which they claimed because of what they discovered as to electrolysis. We made the best answer we could to the alleged facts they presented. Now, they are calling other witnesses at this time to go more ex-

tensively into that feature of their case, and I submit that that is not proper rebuttal, but is part of their main case.

Mr. MATHEWSON: If the Master please, the situation is this: Certain evidence was put in as to electrolysis and the damage done by it. In their case the defendants called Professor Seever and gave testimony in which they endeavored to establish that the electric difficulty did not come from the electric railway, and they have put in evidence which intimated that the grounding of the New York Edison Company might be found to be the cause of the electrolysis existing. I am now rebutting this by a demonstration that the electrolysis did not come from the Edison Company, and that it does come from the elevated, to rebut the exact propositions of the defense, and that is all.

Objection overruled.

The City and State except.

Mr. PAGE: I suppose the objection and exception can relate to the whole testimony here? We won't have to repeat it?

The MASTER: Yes, it may.

5741 Q. Did you make the tests indicated on this map and prepare the map or have it prepared under your immediate supervision?

A. I did.

Q. Describe the map and say what the different colored lines indicate, and what the different figures on the map indicate?

A. The colors are the difference of potential in reference to gas, and that is, the gas mains are positive, according to the colors, to the elevated structure and street railway. For instance, the green color here means that the gas main is negative to the street railway or the elevated along that line, and the red means that the gas mains are positive. The figures being the difference in potential between those points. Red where the gas is positive; green where it is negative.

Q. As to the gas mains?

A. As to the gas mains.

Q. And I see different points where these figures appear to indicate the points where you made your tests?

A. Yes.

Q. And are they a true statement of the difference in potential as you discovered it?

A. They are.

Q. Was the New York Edison Company operating at that time?

A. It was.

Q. And indicate about where, or state where, on the map?

A. Well, there are a number of places.

Q. Well, they are principally——

A. Their principal place is 38th and 39th Streets, East River, somewheres along in here.

By the MASTER:

Q. What is the significance of these hatchings on some of the lines?

A. That is a kind of erratic condition; very near neutral condition, practically neutral.

By Mr. MATHEWSON:

Q. So there is no difference in potential indicated along
5742 those lines?

A. That is the reason the figures are not shown, they are not put on.

Q. Close to the plant of the Edison Company at 39th Street, was there any difference of potential indicated?

A. No, only what you see. It was not there, or it was too slight to put on, very slight, indeed.

Q. Not appreciable?

A. Not appreciable.

Q. What is the meaning of your expression positive to the pipe or negative to the pipe?

A. Merely that the polarity is such that if you connect a wire between the pipe and the rail the current will flow from the pipe to the rail if the pipe is positive.

Q. And if negative?

A. Vice versa; backwards.

Q. Did you note the direction of the currents in these tests in making up your potentials as positive and negative?

A. We did.

Q. Now, the lower part in these green lines indicates immunity, doesn't it, from such difference?

A. Where it is green that shows it is immune from current leaving the pipe. If there was any at all it would be immune from it.

Q. Now, I see a red batch down here by the City Hall, or next to the entrance to the Brooklyn Bridge.

A. Exactly.

Q. And the electric cars were then running over the Brooklyn Bridge at that point, were they not?

A. They were.

Q. Now, after the Manhattan Elevated Railway was in operation, that is, a year later, in May, 1903, did you make further test and make another map?

A. I did.

Q. This map was made in May, 1902?

A. In 1902. Not exactly in May. It extended over two or three months.

Q. About that?

A. About that.

Mr. MATHEWSON: I offer that in evidence.

5743 Received in evidence and marked Complainant's Exhibit 301.

Mr. PAGE: I presume that as this is all new matter we will have an opportunity to rebut this, won't we, Mr. Master?

Mr. MATHEWSON: We do not consider that this is new matter. If it had been I assume it would have been excluded.

Q. Now is this the map which you prepared as the results of your tests made about May, 1903?
A. It is.
Q. Do the figures here, and do the green and red lines, indicate the same things as in the preceding map?
A. The same as before.
Q. Now, the red area as indicated on this map would be the danger area to the pipes, wouldn't it?
A. Yes, sir.
Q. And the green area would represent what?
A. The safe position for the pipes.
Q. I see the same red area here in the vicinity of the Brooklyn Bridge that was indicated on the previous map?
A. The same condition, yes, sir.
Q. And I find red areas on the avenues where the elevated railroad runs generally, and in some other sections, is that right?
A. Yes, sir.
Q. That would indicate, would it not, that the current was leaving the pipes in this down-town red area section?
A. It would indicate that it would be possible to leave it.
Q. A difference of potential?
A. Yes, sir; a dangerous condition.
Q. Now, the New York Edison Company had a distributing system all through this section in 1902, as well as in 1903, did it not?
A. Yes, sir.
Q. And sub-stations at one point and another?
A. Distributed throughout the city.

5744 Q. Do you find now a "danger area," as you call it, indicated by the red line near the station of the Edison, which was not there in 1902?
A. Yes.
Q. For Thirty-ninth Street. Was there any difference in conditions so far as the Edison Company was concerned at those two periods, so far as you will recall it?
A. I don't think so.
Q. Were you connected with the Edison Company?
A. Yes, sir.
Q. No difference?
A. No, sir.

Cross-examination by Mr. BURR:

Q. How are those maps made up? Did you have original data from which the maps were made?
A. Yes, sir.
Q. How long did it take you to make the examinations necessary to make that map which you are now testifying regarding?
A. Three or four months; maybe five.
Q. What was the procedure that you adopted?
A. To take actual readings with instruments, follow all along the line of the street, railways and elevated and cross-town.
Q. Have you got the book showing such readings?

A. Yes, sir.
Q. Were you assisted by anybody?
A. Yes, sir.
Q. By whom?
A. Some employees of the Edison Company.
Q. Do you know their names?
A. Yes, sir.
Q. Will you let me have them?
A. In the 1902 or 1903, which do you mean?
Q. Well, the first map.
A. 1902?
Q. Yes.
A. A man named Noe.
Q. What position has he with the Edison Company?
A. I don't know exactly what position, except he is there. He was assigned to me to help me on that work.
Q. Did he point out the various distributing stations of
5745 the Edison Company to you and the various connections with those stations?
A. He did not have to.
Q. What particular part, then, did Mr. Noe take in getting up the data from which you made the first map which you produced here?
A. He did the actual reading of the instruments and working generally with me.
Q. Were you employed by Mr. Noe?
A. No.
Q. By whom were you employed?
A. New York Edison Company.
Q. Was Mr. Noe the only gentleman from the Edison who helped you to make up that first map?
A. Well, there may have been one or two laborers; I don't remember their names though.
Q. They were all brought to your aid by Mr. Noe?
A. No, they were set especially for me to use. I picked him out as somebody out of the ordinary.
Q. You thought he was fully familiar with the operation and work of the Edison Company and could give you all the information you needed?
A. No, I preferred him to help me out as knowing how to read instruments and that.
Q. With regard to the second map, who assisted you to get the data from which that was prepared?
A. A young man named Strong.
Q. Also of the Edison Company?
A. Yes.
Q. And some more laborers?
A. Yes.
Q. Practically under the same conditions as the first map was made?
A. The very same.

Q. And you were employed by the Edison Company to make that second map just as you were the first map?

A. Yes, sir.

Q. And you still have in your possession the original data from which both maps were made up?

A. I have.

Q. Do you know whether the conditions which now exist
5746 have changed in any iota or in any character or degree from the conditions as they existed at the places on those maps in 1902 and 1903?

A. Well, 1903 has changed since 1902.

Q. In what respect?

A. Why, the red lines have extended down into the city; the danger zone, you might say, has increased.

Mr. BURR: That is all I have to ask with regard to that point.

Cross-examination by Mr. PAGE:

Q. When did the water-side station of the Edison Company begin its operations?

A. I am not sure; I think it was around 1900 or 1901.

Q. Did they abandon in 1900 and 1901 the various stations for manufacture that are scattered throughout the city?

A. No, it was just started up then, and that was sort of an auxiliary; they could not abandon the others.

Q. When did they abandon the others practically and manufacture all their electric currents at the water-side stations?

A. I don't think they have abandoned them yet.

Q. What sub-stations do they run?

A. They may be abandoned. I don't know as they are abandoned.

Q. Do not they manufacture current now at the water side, transmit it at a large voltage to these sub-stations and there reduce it?

A. I don't think they do manufacture it all there. Of course, I am not a member of the Edison Company and I would not state that with assurance, but I am sure they do not manufacture it all there.

Q. You are willing to admit they manufacture some?

A. Oh, yes; a great deal of it.

Q. Well, for that much, thanks. When was the three-wire system of lighting introduced in the City of New York? Can you tell that?

A. That came a short time after Mr. Edison first put his
5747 plant in operation in New York City.

Q. When was this used in New York City for common or general use?

A. What year?

Q. Yes.

A. I couldn't say offhand; too far back.

Q. Can you approximate?

A. About probably 1890.

Q. Then I understand you to say that when the Edison system was first installed it was a three-wire system?

A. No, I don't say that.

Q. You said ever since the Edison system had been installed in New York City——

A. No, ever since about it was installed—the first ones he installed were two-wire. He didn't come to use a three-wire till later. It was a discovery of the three-wire system after using the two.

Q. And that was some years after the two had been used?

A. Some, but not very long.

Looking at this map (1903) I find that starting downtown and running up as far as Manhattan Avenue——

Mr. MATHEWSON: I do not think the second map was offered in evidence. I now offer it.

Mr. BURR: I ob-ect to the intr*do*uction of the map as incompetent, immaterial and irrelevant.

Objection overruled. Exception.

Received in evidence and marked Complainant's Exhibit 302.

Q. Looking at this map (Exhibit 302) I find that starting downtown and running up as far as Manhattan Avenue and Broadway it appears to be entirely a danger point?

A. Yes, sir.

Q. All red?

A. Yes.

Q. What elevated structure runs up Broadway?

A. That refers to the street railway and to the gas mains.

5748 Q. And that has no relevancy to the elevated structure?

A. Not on that particular one, no.

Q. Now, in making these tests what instruments did you use?

A. Weston.

Q. Weston what?

A. Voltmeters.

Q. Anything else?

A. For all those readings shown there, Weston Voltmeters.

Q. Now, as I understand, this red shows the intensity of the electric current that was flowing through those pipes?

A. No, sir.

Q. That was flowing between the pipe and the rail?

A. No, sir.

Q. Then tell us what it does show?

A. It shows the difference of potential between those points.

Q. Well, what points, for instance?

A. Gas pipes and the street railway or the elevated, as shown.

Q. Now, what do you mean by "shows the difference in potential between the street railway and the gas pipe;" what do you mean by it; interpret it into ordinary language?

A. When you say there is a difference of potential between two points, a volt, you mean there is a stress, an electrostatic stress of one volt, in electric terms. I don't know how *you* would pronounce it for you unless you might say a pressure between two points on a water pipe or between two water pipes.

Q. We will try and get it in this way—when the pressure is heavier on the gas pipe than it was on the railroad——

A. Where the gas pipe is marked red it means the gas pipe is elevated electrically above the surroundings.

Q. Let us get off the elevations and stick to the pressure you were talking about.

A. Pressure is an elevation.

Q. Not necessarily. Men are elevated sometimes when they are not under pressure, but let us use this phrase, if you will
5749 kindly stick to one particular illustration long enough for us to get that interpreted, and then we will take the elevation afterwards, if you wish; but there where it says "2" on the red line, for instance, on Complainant's Exhibit 302, does that mean that there is a greater pressure by two volts on the gas pipe than there is on the rail?

A. It means just as I say, a difference in potential between the gas pipe at the point and the rail at that point, of two volts.

Q. Now, you say there is a difference of two?

A. Yes.

Q. Does that mean there are two volts more on the gas pipe than there are on the rail, or two volts more on the rail than there are on the pipe?

A. Two volts more on the gas pipe.

Q. That is, that the gas pipe is carrying two volts more of current than the rail?

A. No, you cannot state it that way. You are mixing up electrical terms.

Q. Do you mean that the current is leaving the gas pipe and passing to the street railway system?

A. I mean it can do so.

Q. But you do not mean it was?

A. Well, I cannot see what is taking place under the ground.

Q. The instruments that you had then would not show whether currents were passing from the pipes back to the rail?

A. Not in that test.

Q. Would it in any case?

A. Yes, other tests.

Q. I mean in any you have shown on this map?

A. Not on that test, no.

Q. That is all we want, just what is put in here. Now, what do you say the green means?

A. It means the gas is of a lower potential, the way you put it, than the surroundings.

Q. No, that is the way you put it.

A. Then I will put it that way.

Q. That means what?

A. It means that the current could flow the other way.

5750 Q. That the current could flow from the street railway to the gas pipe?

A. To the gas main.

Q. Then all this map shows is the electric potentiality of the pipes at different places, is that all?

A. Relative to its surroundings.

Q. Relative to what surroundings?
A. Street railway or elevated, and such.
Q. Did you make any tests in regard to the subway?
A. The subway was not built then.
Q. By subways, I mean those that carry the telephones—electrical conductors?
A. Yes.
Q. Did you make any measurements in regard to those?
A. Yes.
Q. At the same time?
A. Yes.
Q. That is not shown on this map?
A. That is not shown on this map.
Q. And the relative potentialities of those are not shown as compared with this, in any way?
A. No, they are not shown.
Q. Then, as I understand, all this shows is that there is current flowing through these red lines or red pipe of such potentiality that it might possibly go back to the street railroad or elevated structure?
A. It is not current flowing necessarily, it shows its possibility, but if the current did flow, it would flow as you say.
Q. Then, as I understand, this map is based entirely upon possibilities, and not upon facts, is it?
A. Based upon facts of dangerous conditions.
Q. That is, that it is possible?
A. Exactly.
Q. That there is a possibility of something there, but it does not show anything that actually does exist?
A. Not on those figures, no.
Q. And there is nothing to show on this map from what source these stray currents that have electrified the pipes flow, is there, the currents, I mean, from what source they come?
A. Not on that particular map.
5751 Q. Nor on Exhibit 301?

Mr. MATHEWSON: 302, is it not?
Mr. PAGE: This is 302 and the other was 301.

Q. Is that right (previous question repeated)?
A. Not on that map.

The MASTER: Then he asked you what was the case regarding the preceding map, No. 301.

A. The preceding map has no dangerous area except the extreme end and this end.

Mr. MATHEWSON: You mean at the north end and south end?
The WITNESS: Yes.

Q. Then these two exhibits merely show a difference in potentialities, and do not show the flow of any current, nor the source from which the current comes in any way?
A. No.
Q. Now, just in what way did you make these measurements?

You say the difference between the gas pipe and the street railway. What part of the street railway?

A. The right part, where they stand side by side.

Q. Where what stand side by side, the rails of the street railway standing side by side with the gas pipes?

A. Standing right along the same section of the street as the gas pipe and the elevated pillars.

Q. Where was your test for potentality made on the street railway?

A. Between the street railway and the point on the gas mains in the same section of the street, a cross section.

Q. A street railroad is made up of rails, is it not?

A. Yes, sir.

Q. And, also, there is some place where there is a conductor for electric current?

A. Yes.

Q. Now, where is your difference in potentiality between
5752 the conductor or the rail?

A. On the rail and on the pipe.

Q. Where on the elevated railroad structure?

A. On the pillars.

Q. Did you lay these pipes bare to make the tests?

A. Of the gas pipes?

Q. Yes.

A. No.

Q. How did you get at it?

A. Street lamps.

Q. Street lamps?

A. Yes. Of course, there are some cases where the pipe is exposed where you could do it, but, as a rule, street lamps.

Q. What do you mean by that, by street lamps?

A. Well, the street lamps come right up from the gas mains and that would serve as the potential conductor for you.

Q. Couldn't there have been a stray current from some other source to the lamp that would not come through the pipe?

A. I was not after that. I was after——

Q. I know you were not after it, but I am asking what could be?

A. It would depend upon the difference you want; if you want a difference in potential between the gas main and street railway and the lamp connected with the gas main——

Q. Assuming this fact, that connected with that lamp or near the bottom of the lamp there was a lead cable carrying a current, could not that electrify this lamp and would not current flow from the gas main?

A. That would not disturb your test between the gas main and street railway. You would get that condition, no matter what caused it.

Q. It would be a test between the gas lamp and street railroad, would it not?

A. Yes, between the gas lamp and the street railroad.

Q. And not necessarily between the main and street railway?

A. Well, you will have gas mains or gas lamps—if by any chance they made no contact you would have to select another lamp;
5753 that is the only change we made in testing gas lamps, by taking a contiguous lamp across the street or something like that; but even if the gas lamp was connected with a cable, as you say, that would still act as the potential for that gas main for you, and would give you for the gas main what you are after.

Q. Take this three-wire system of the Edison Company, you have got a neutral wire there that you ground, have you not?

A. Yes.

Q. And if your current becomes unbalanced as between your other two wires, the current flows on the neutral wire, does it not, to the ground?

A. Yes, not necessarily to the ground; it flows on the neutral wire.

Q. Where does it go? It might go to a lamp post, might it not?

A. I don't think so.

Q. Then what do you do with it; it flows, it has to go somewhere, it flows along the neutral wire and it is grounded?

A. It flows between points of differential potential.

Q. Here is your neutral wire. As soon as it has a wire to travel on, the current will travel on that wire, won't it?

A. Not necessarily; if the wire connects two points of different potentiality then it will. The wire may be there and no current.

Q. I know, but I say, your two wires, and the current becoming unbalanced, the very purpose of having that wire is to carry off and so restore the balance between the wires?

A. Yes.

Q. And therefore, this neutral wire then absorbs the difference, if you may so express it, between the other two wires, and that current passes along that neutral wire, doesn't it?

A. Yes.

Q. And that neutral wire is carried down into the ground, is it not?

A. No, it is carried back to the station.

Q. How?

A. It is continuous, keeping increasing all the way to the
5754 station, taking it up at different places as it goes along, one continuous wire.

Q. How does it get back to the station, do you mean that the third wire in this building runs back to the station?

A. Exactly.

Q. Through what?

A. Through the Edison three-wire system, neutral wire.

Q. Then that third wire is not grounded, is it?

A. Yes, sir.

Q. If it is a continuous wire running back to the station, where is it grounded?

A. It is grounded at the junction boxes and the station.

Q. Now, supposing you have these neutral wires running back and you have another neutral wire and there is a difference in potential

of those two neutrals—that is, we call them neutral, meaning the third wire——

A. Yes.

Q. And there is a difference in potential, may there not be a flow from one neutral to the other through the earth?

A. No, not necessarily.

Q. No, not necessarily, there is not necessarily any flow here, but is not that a dangerous condition?

A. If there is a dangerous difference in potential there might possibly be so, surely.

Q. Well, is it not possible to be?

A. It is possible if there is a dangerous difference in potential. If there is a difference in potential there is a chance of current flowing.

Q. And is it not likely that the systems in different buildings would not be unbalanced to the same extent, and, therefore, your neutrals would always have a different potentiality?

A. In buildings the neutral is not grounded.

Q. You just said they were from this building, and, for instance, you said it went back and was grounded through the junction boxes, and I don't know what else.

A. Not in the building.

Q. No, but I said the wires from this building.

5755 A. The wires in any building are insulated. After leaving the building then you might have a ground.

Q. Well, that is what we are talking about. Now, are those the wires, the wires from this building that you are speaking of that are insulated and carried back to the Edison station?

A. They are.

Q. And that refers to the neutral as well as the other?

A. To the neutral, yes.

Q. Did you make any measurements at all as to the difference in voltage on the lamp posts and the voltage on the main itself; did you make any such tests, where you had taken a test of a lamp post, did you make a test on the mains?

A. That is between the lamp posts, do you mean, or along the main, or along a pieces of main, or what do you mean?

Q. Between the lamp post and the main, whether it was a piece of the main or along the main, whether you made any tests, I don't care, but whether you did make any tests between the potential on the lamp post and on the main?

A. Only as between two lamp posts.

Q. Then, we understand this represents the difference in potential between lamp posts and the street and not on mains, is that it?

A. Not necessarily. It means the mains.

Q. The only results you obtained were on the lamp posts, were they not?

A. No, I said the mains had been taken also where we could get them; the trouble is the mains are buried and you can't get them. These act as potential points.

Q. How many such tests did you make where the main was actually bared?

A. Well, in that case the main was bared, I should say, at every elevated station anyway, and a number of points between; I don't remember how many.

Q. Why at the elevated station?

A. The elevated stations were lit by gas then.

5756 Q. That is a service pipe up to the elevated station, isn't it?

A. Yes.

Q. So you did not take them there on the mains?

A. Well, that is quite a different condition from the lampposts, that is all, that is a straight screw connection.

Q. Then we will go back to the original question. Where, along that map, on Exhibit 302, point out any place where you took the measurement actually on the main in the street?

A. I cannot do it on that map.

Q. Can you do it on the other map, on Exhibit 301?

A. No, I cannot do it on the map. I would have to go back to the original records to see that?

Q. Were there many of them?

A. I do not think so.

Q. Well, were there any?

A. Yes, there were some. New York is always dug up, so you can get a number of chances.

Q. Wherever you were fortunate enough to find a place where the main was bared you took the measurement on the main, didn't you?

A. Yes.

Q. And not on the lamppost?

A. Yes.

Q. Now, you are not able to state whether the results of those measurements were represented on this map in green or in red, are you?

A. No.

Q. Those actual measurements of potentials which you took in the mains themselves?

A. No.

Q. Do you know whether these lampposts you took the measurements of were attached to Consolidated Gas Company mains or Mutual Gas Company mains or Standard Gaslight Company mains?

A. I could not tell you offhand.

Q. Well, you paid no attention to that, did you?

A. No, we took them right straight along, one after the other.

Mr. PAGE: That is all.

5757 By Mr. BURR:

Q. What was the object of your employment, was it to ascertain by this examination, which you say you made at these various points, what the effect of the Edison wires was upon the gas mains in the street?

A. No.

Q. What was it?

A. To find what the condition of the street was in general for anything, if there was any dangerous condition.
Q. Dangerous condition to what?
A. To the gas mains.
Q. You were employed by the Edison Company to ascertain whether there was a dangerous condition to the gas mains?
A. Yes, sir.
Q. In 1902, and again in 1903?
A. Yes.

Redirect examination by Mr. MATHEWSON:

Q. In Map 301, I observed a red or danger area near the Brooklyn Bridge, to which I called your attention, and the other red or danger area was along the route of the 135th Street overhead trolley and radiating from there for some distance, was it not?
A. Yes, sir.
Q. This upper end?
A. Up and down, yes. There is 135th Street (indicating).
Q. And do you know the overhead trolley line runs through 135th Street?
A. Yes.
Q. Once currents are let loose, assuming that they are by the elevated or trolley system, or by any other force, they would run along the conductors in a way, would they not, including the rails of street railway lines that cross?
A. Any chance at all they get for a good conductor they would follow it.
Q. And up Broadway on those rails?
A. Everywhere there is a good conductor.
Q. Are you personally familiar with any substantial
5758 change in conditions in the streets of New York, electrically, between 1902 and 1903, except the electrification of the elevated railways to cause such a change?
A. No change.
Q. When it comes to test the difference in potential between the gas mains and rails you would connect your instrument both to the gas mains and to the rail in some way, wouldn't you?
A. Exactly.
Q. If there is a rod running up from the gas main, either in the shape of a service or a lamppost, it would simply save running your wire so much farther, wouldn't it?
A. Exactly.
Q. Would it make any difference in potential, so far as your test is concerned?

Mr. PAGE: Let the witness testify.

Q. The lamp service, I should say?
A. These tests I made on the lamppost were not on the shell of the lamp; there was a pipe inside, which we were very careful to get at.
Q. You made your tests on the lamp service?
A. On the regular lamp service, on the pipe that feeds the lamps.

Q. Would they show the difference in potential, between the rail and main, as though you ran your wire down to the main itself?
A. Yes, sir.
Q. And the same in the case of the service?
A. And the same in the case of the service.

By Mr. PAGE:

Q. I understand you to say that according to your idea all of these red lines in the upper part of New York City come from the 135th Street overhead trolley?
A. This map?
Q. Yes, 301.
A. 1902?
Q. Yes. In 1902.
A. Yes. I don't know, I surmise it does, from the indications.
5759 Q. And you think that the red line running up Amsterdam Avenue is electrified from the 135th Street trolley?
A. Yes, sir.
Q. And you think running on down Amsterdam Avenue and the Boulevard on the west side down to practically 65th Street?
A. Something like that.
Q. Or 69th Street?
A. Yes.
Q. It comes from this overhead trolley on 135th Street?
A. It comes from the upper districts, yes.
Q. As an electrical expert, how do you figure that from the 135th Street here the lines on Second Avenue, Third Avenue and Lexington would be more heavily electrified than they would on Madison Avenue, which is in direct contact with it?
A. They all come from the Bronx, over the different bridges, and they are all tied in metal-ically there, and so are connected.
Q. Does that explain why Madison Avenue, which is in direct connection with the Bronx and with the 135th Street trolley line, should be less an area of danger than the avenues to the east?
A. No, not necessarily.
Q. I ask you as an electrical expert that knows all about this very difficult subject, to say whether that is.
Mr. MATHEWSON: But it is not. You are quite turned around. It is not more heavily electrified over there, it is less; if you will look at the map you will see you have misread the figures by inadvertence.
Q. Let us go down here to 100th Street, and there it ends and you get a neutral pipe, and on the other avenues it runs clear down to Eighty-sixth Street, that is what I am referring to. I am getting to the red and green.
A. They follow the metallic structures down the different streets.
5760 Q. Well, the metallic structure here is the gas pipe, isn't it?
A. Well, it is the gas pipe and street railroad, it follows

both. Where it is red it means there is more on the gas pipes than on the others. It shows a higher potential.

Q. Where there is red and green on each street, what does that mean; that there are two gas pipes, one having a positive and the other a negative potential?

A. No, that is the distinction between the elevated and surface. The smaller figures are the elevated and the heavier the surface, with reference to gas mains.

Q. Now we will take the avenue where we have—take Third Avenue. You have, I notice, a green line and a red line running down that same avenue?

A. Yes.

Q. What does the green line mean and the red mean?

A. In that case the green means the pipes are negative to the elevated and positive to the street railways.

Q. And the red means negative to the street railway and positive to the elevated?

A. The red means the gas mains are positive to the street railway in that case.

By the MASTER:

Q. You can read those colors in connection with the size of these figures, whether they are large or small?

A. Yes.

By Mr. MATHEWSON:

Q. Where they are parallel, running along together?

A. Yes, in the same street.

Q. Now, as a matter of fact the Bronx is operated by the overhead trolley generally, isn't it?

A. Yes.

5761 Q. And it is possible that currents may come down over the Third Avenue bridge as well as the Madison Avenue bridge?

A. Yes, over all the bridges, the steel structures.

Q. The 135th Street line is part of that general Bronx system, is it not?

A. Exactly.

Mr. MATHEWSON: That is all, so far as I am concerned.

JOHN W. LIEB, JR., called as a witness on behalf of the complainant, in rebuttal, being duly sworn, testified as follows:

Direct examination by Mr. MATHEWSON:

Q. Mr. Lieb, what position do you hold in connection with the New York Edison Company, if any?

A. I am the third Vice-President and Associate General Manager.

Q. What experience have you had in electrical business, electricity for lighting and kindred subjects; very briefly?

A. Beginning with 1880, I graduated from the Stevens Institute of Technology as a mechanical engineer and became connected with

Mr. Brush, of the Brush Electric Company in Cleveland; then went with the Edison Electric Light Company and was Mr. Edison's personal assistant in connection with experiments and the installation of the old Pearl Street station in New York City in 1882. I went abroad for ten or twelve years as the chief engineer and technical director of the Italian Edison Company, which I assisted in establishing, and I had charge of the construction, designing and operation of power plants of different kinds all over Italy. In 1894 I returned to the Edison Electric Illuminating Company and occupied various positions, as associate general manager, general manager and third vice-president and general manager of
5762 the Edison Electric Illuminating Company, and then third vice-president and associate general manager of the New York Edison Company, the position I to-day occupy.

Q. Are you practically familiar with the testing of electric currents and their effect and the circumstances under which they may operate?

A. I am.

Q. I call your attention to Complainant's Exhibits 301 and 302, being the two maps which have been just put in evidence, and ask you whether between 1902, when the first map was made, and 1903, when the second map was made, there was any change in the stations or method of operation of the New York Edison Company that could account for the difference in potentials as shown on those maps?

A. No, sir.

Q. I will ask you to what you would attribute the red or danger area at the upper end of the city as shown on Exhibit 301?

A. I would attribute that—and I made tests to determine that, or had tests made under my direction to determine that fact—that the danger areas in the upper part of this city were due to the return currents that were flowing back from the upper part of Manhattan across the bridges and across the Harlem River back into the Bronx. I will say, in order to bring that matter out clearly, at my request the power house of the Metropolitan Street Railway Company, which was operating at the time, in the neighborhood of 140th Street and Lexington Avenue, was closed down completely for a period; so that the only current that was left in the upper part of the city was that which came directly over to operate the 135th Street line, and what was left then with this power house on Manhattan thrown out of service was practically a very narrow circle of influence, due directly to the return on 135th Street alone.

5763 Mr. PAGE: You said 140th Street and Lexington Avenue; you mean 140th Street and Lenox Avenue, don't you?

The WITNESS: I was not sure whether it was Lexington or Lenox. Make it Lenox, 146th and Lenox Ave.

Q. As to the danger area which was shown around the City Hall, to what would that be attributable in your opinion?

A. That is due very directly to the return currents which are going back to Brooklyn, some of them over the bridge and some of

them into the earth, and through the East River back to the Borough of Brooklyn.

Q. Now, aside from your testimony that there was no change in the Edison Company between the dates when these two maps were prepared, which would account for their changed indications, was there anything, so far as you are aware, other than the electrification of the elevated railroad, which did account for the change in 1903, as shown by Exhibit 302, as compared with 1902, and by Exhibit 301?

A. There was not.

Q. Didn't you make it your business to keep familiar with the electrical conditions and changes in the Borough of Manhattan during that period?

A. That is part of my business, sir.

Q. It was suggested in the testimony of witnesses for the defendants that electrolytic conditions, if they existed, might be due to the current or method of operation of the Edison Electric Company. Aside from these comparisons that are made on these maps have you anything to say on that subject, briefly, whether in your judgment that is so?

Mr. PAGE: I remember, if the Master please, that most of those sug-estions were made in the questions of counsel, and my recollection was that Dr. Sever did not rise to the opportunity I gave
5764 him on that line, but if they wish to rebut the questions of counsel——

The MASTER: I do not recollect what his testimony was.

Mr. MATHEWSON: He brought that in specifically.

Mr. PAGE: Counsel did, I remember, but I had sort of a recollection that counsel was disappointed at the answer of the witness.

Q. I will merely ask you generally, if you will answer in a word, whether that could have been responsible for the condition?

A. In my judgment, and as the result of my experience and numerous tests made at my instigation and under my direction, it is my judgment that the neutral return wire of the Edison three-wire system in New York City has nothing to do with the electrolytic conditions in the Borough of Manhattan as shown by these maps.

Q. Would these maps indicate to you, as an expert, that the Edison system was having any effect in that direction?

A. These maps would not give me the necessary evidence to have a definite judgment on that.

Q. You speak from your own knowledge, outside of the maps?

A. I speak from specific tests made at my request at different times, which were made for that specific purpose.

Cross-examination by Mr. PAGE:

Q. Now, you say that the electrolytic condition of New York City is in no way due to the Edison Company?

A. In no substantial way, no way that——

Q. That there are no stray currents?

Mr. MATHEWSON: Let us have the answer first.

5765 The WITNESS: In no substantial way that would affect what would be denominated as the electrolytic conditions which would be likely to produce electrolysis, or which would give rise to a dangerous difference of potentials.

Q. What precautions have you taken—or have you taken precautions from time to time against electrolytic action?

A. Every precaution known to the state of the art.

Q. And have those been from time to time?

A. Continually.

By the MASTER:

Q. I think the Senator would prefer to have you describe them. I would be glad to have you do it.

By Mr. PAGE:

Q. Yes, and state when you first took the precaution and what you did from time to time.

A. It may be necessary for me to go a little far afield. As has been brought out here, the original Edison system installed in New York City here was what was known as the two-wire system; that was installed in 1882 and 1883. After that system had been in operation several years the three-wire system was invented by Mr. Edison, and subsequent installations in New York City and America generally, and abroad, were made by the three-wire system. The two-wire system in the lower part of New York City was kept operative for a long number of years. Parts of that system were still in operation only three, four or five years ago. On the introduction of the Edison three-wire system it was, as a general rule, operated without specific grounding, as it is called, of the neutral. Each outgoing feeder from the operating power houses and all of

5766 the mains and services were operated with three wires. In the case of the mains and services these three wires were of the same conductivity; in the case of the feeders the outgoing and the return wires were of greater cross section than the return, each feeder carried directly back from the system and from the nucleus of main where it was attached, carried back the return wire, directly back into the power house. The purpose of the neutral wire was to take care of any unbalancing that there might be between the currents carried by the two legs or branches of the system. The extent to which that unbalancing takes place depends upon the subdivision of the installation itself in the houses and of the number of customers that might be connected to one of the other leg or branch of the three-wire system.

In New York City that subdivision is carried out so fine, it is carried out to such an extent, that unbalancing does hardly exist. I know of no place where the translating devices used on the system are to such a large extent connected to the outside wires, and therefore, have nothing to do with the neutral. The neutral in New York City is substantially a return only for lighting circuits, and for 110-volt translating devices. So that the subdivision is so fine that

the neutral carries an insignificant amount of current. The amount of copper which is provided naturally by the type of construction which I have explained is such that the cross section of copper which is provided for the insignificant amount of current that comes back over that neutral wire is many hundred times the amount of copper which is provided for the outside legs.

Later, it became the practice of companies operating the three-wire system to so call ground the neutral. The grounding of the neutral in the Edison three-wire system has nothing whatever to do with providing a by-path or any kind of a path for the current
5767 through the ground to come back to the Edison station. The grounding of the neutral is merely a precautionary measure. At first that precautionary measure was not recognized by the Board of Fire Underwriters and electrical rules generally, but as experience has been extended, the wisdom of grounding the neutral has been so far demonstrated, also from the standpoint of the insurance authorities, that the grounding of the neutral is not only permissible but is in many conditions rendered obligatory. The Edison three-wire system, as it is in New York, has been and can be and could to-day within twenty-four hours' notice be rendered absolutely independent of the ground; that would not affect the operation of the system in any way in the slightest. The grounding of the neutral is merely there as a precautionary measure in case there should develop a very serious short circuit generally on the system, which might bring the neutral wire and the outside wire on one side at the same potential and bring, therefore, between the middle wire and the remaining outside wire the full potential of the system, double what it is normally intended for, and produce in such a contingency serious results.

With the change which took place in 1894 or 1895 in New York City in the substitution of cables for the Edison three-wire system, a change took place, and instead of using for the Edison feeder system conductors with three wires, the main feeders consisted of two wires only, and the neutral was brought back to the station independently. That resulted in the development of what is known as the tree neutral, which is a system of return conductors that is independent of the outside wires and is more efficient. It enables any local unbalancing, if such there be, any minimum amount of it, to be compensated for locally without running back to
5768 the station and out again; and pursuing the same course of very large copper sections for the Edison neutral, which was the practice when the tubes were used, with three-wire conductors, there is to-day in New York City a neutral provided for each and every substation which is immensely, as I said before, many hundred times larger that the outside conductor for the purpose of carrying back to the station the infinitesimal amounts of current that comes back over the neutral conductors. We have a direct measure of that in so far as our machinery generally does not send current into the neutral at all. Our machinery has its terminals on the outside wire, and we have small balancers set in the stations of comparatively insignificant capacity as compared with the generating station that take care of that small amount of neutral current. The amount

of current that is sent back and forth over that neutral is, therefore, a matter of daily registration and accounting, and it is absolutely insignificant. That is the story.

Q. Now, let us see if we can get this. You say in 1883 was the first installation of Edison lighting in New York City, and that was the two-wire system?

A. September, 1882, the first general distribution of current for lighting power by underground conductors.

Q. And for a number of years that was a two-wire system?

A. Yes, for quite a number of years.

Q. Then, when you say that an independent third-wire return was abondoned for some different system in 1894, you are mistaken on your second date, are you not?

A. No, I said that the Edison three-wire tube system, the two Edison tubes were no longer used generally after 1894, and the cable conductors were used instead of Edison tubes, was my statement.

5769 Q. When was the three-wire system generally installed?

A. Well, in New York City——

Q. Take it particularly in the lower portion of this city.

A. I think the installation—I was not here at the time, so I can only speak generally as to the conditions here—I should think that so far as I know, the third wire system began to be generally used between possibly 1885, 1887 and 1890. My memory does not serve me quite correctly as to the exact date. I know I installed it in Milan, Italy, in connection with the Edison Lighting system there in 1886 or 1887.

Q. Do you remember when it was that the Board of Fire Underwriters of this city required all buildings to be rewired with the Edison three-wire system rather than with the two?

A. I was not here at that time.

Q. Was — not within the last four or five years?

A. That is not within the time of my connection with the New York Edison Company, sir.

Q. Well, do you mean that the last four of five years was not, or the time it was required was not?

A. Any questions that have existed as regards the Edison three-wire system and the Board of Fire Underwriters, to my knowledge, obtained between 1882 and 1893, while I was abroad; not since my return in 1894.

Q. Now, is the present practice to ground the neutral wire or any portion of it?

A. Absolutely, some places even by absolutely bare neutral conductors without any insulation whatever. It is absolutely the only safe and proper practice in the case of a three-wire system.

Q. And I understand that the amount of current that gets back to the station over these wires is an infinitesimal quantity?

5770 A. It is, where the subdivision of the power or lighting units, as is the case in New York City, where almost——

Q. We do not care for all that explanation over again.

A. Well, that is the reason for it. The——

Q. [illegible] the fact is, that over these grounded wires or whatever you call them, very little current goes back to the station?

A. Peculiarly so in New York City.

Q. Now, you say there might be a serious short-circuiting, and it is for that purpose that you have this wire grounded. Now, if this serious short-circuiting should occur, would it create a dangerous difference of potentiality on the subsurface structures?

A. It could not under present conditions. The results would be entirely different than what they would if the neutral were not grounded. In other words I——

Q. Well, would that throw your neutrals out of balance?

A. If there were a short circuit on one side of the system, decidedly so in such a contingency, and it is only for that contingency that the neutral is grounded.

Q. Now, I judge from these many changes that you have spoken of in your seeking to establish a return system, that you have given considerable attention to the gathering up of your stray currents and bringing them back home, is that right?

A. It is my business to be posted and familiarize myself with anything that has to do with the operation of our system.

Q. And you think that now you have got that pretty well perfected, so that most of the current that goes out from the Edison Company is brought back to the power house over your own return circuit?

A. I think that that has always been so, and now more so than ever.

Q. And that has been the purpose of electrical engineers operating any system?

5771 Mr. MATHEWSON: How does he know what the purpose is?

The WITNESS: The purpose of electrical engineering is to obtain the results desired in the best possible way at the lowest possible expense.

Q. And all this current wandering around over the inside and over the gas pipes represents just that much loss to the company that originated the current, does it not?

A. Not necessarily, that is not necessarily a question of loss.

Q. Well, when the current strays off in this way don't you lose?

A. No, I would like to explain that by a case. If there was a system necessary to return current from Harlem down to the Battery, and you had suppositionally only a very small wire, if you could allow other conducting mediums to participate in carrying that current back from Harlem to the Battery, it would be a distinct source of saving and not of loss.

Mr. MATHEWSON: Say, a gas pipe?

The WITNESS: Any convenient thing that might serve as a conducting medium.

By Mr. PAGE:

Q. Is that why you put in a neutral of such large cross-sections, that it would gather up these stray currents of other people and bring them back to you?

A. No, to make sure that all of ours were safely carried back.

Q. Every competent electrical engineer would try to carry back his own current, wouldn't he?

A. Well, he might make an effort in that direction, but the problem is not in all cases quite as simple a one as it is in the case of the Edison three-wire system. For instance, in the case of an
5772 overhead trolley system the problem is a very much more difficult one.

Q. And that is the most difficult probably, the overhead trolley, is it not?

A. Yes, that is one of the problems.

Mr. PAGE: I think that is all.

Cross-examination by Mr. BURR:

Q. In other words, you claim that although there may be other stray currents, these stray currents do not belong to you?

A. No, sir, they do not. I make that statement emphatically.

Q. And was it for the purpose of ascertaining the existence of any of these stray currents that you had those examinations made by Mr. Valey in 1902 and 1903?

A. The purpose of that examination was to obtain information for myself and the company as to the general underground conditions obtaining in New York City, the potentials which were developed with different substructures, and to inform myself of their different stages and development as other elements by stages became operative.

Q. Well, your investigation was particularly addressed as to the effects of any wandering current belonging to you from the gas mains, wasn't it?

A. Not alone, sir, they were also addressed toward the conditions which might obtain as to other structures, subsurface structures, and elements other than gas pipes.

Redirect examination by Mr. MATHEWSON:

Q. If you found currents flowing back to a station producing electricity, those being discovered by tests as to the direction of the current and the points to which they were tending, would that indicate where those currents originated or from what source they came?

A. Well, such stray currents as would come back right di-
5773 rectly, and could be traceable right directly to a power station or a substation, would indicate that there was a condition at that power station which was responsible for that returning.

Q. Or if the current and its direction was taken at the structure which carried the current?

A. Yes.

ALEXANDER MAXWELL, called as a witness on behalf of the complainant, in rebuttal, being duly sworn, testified as follows:

Direct examination by Mr. MATHEWSON:

Q. Mr. Maxwell, what is your business?

A. Electrical engineer.

Q. Connected with what concern?

A. The New York Edison Company.

Q. Did you make last April a map of a certain portion of the city north of Canal Street, running along the North River up as far as West 4th Street and east to Broadway, showing currents of electricity at various points with their intensity and direction?

A. Yes.

Q. Is this the map (handing paper)?

A. Yes, sir.

Mr. PAGE: What is this proposed to rebut?

Mr. MATHEWSON: Professor Sever testified as to the bonding of the elevated railway, etc., so that no current which could do harm could escape, he thought, from the elevated railway.

Mr. PAGE: When that system was completed?

Mr. MATHEWSON: No, as it is now. He described the bonding, how it was done. I propose to show, or will endeavor to show briefly, that he was mistaken, that it is escaping and doing exactly what he says it could not do.

5774 Mr. PAGE: Professor Sever's testimony was as to a complete system of bonding on the subway, and that they had commenced to establish that on the elevated, and when it was completed there would be no escape.

Mr. MATHEWSON: I remember distinctly he testified as to the elevated and how it was bonded and protected.

Mr. PAGE: On page 3912, referring to the elevated road, "it is my opinion that with the construction that has been cited and with the additional construction now so successfully employed in the subway the difficulty, if any, from the elevated stray currents will be practically, if not almost entirely, done away with."

The MASTER: I do not know what is intended to be shown by this witness, but assuming that Mr. Mathewson intends to show the result of certain observations as to existing conditions, would you not consider that to be proper rebuttal of the expressions of the expert, Mr. Sever, to the contrary? Mr. Sever testified in his opinion that certain things would result, and if he puts a witness on the stand who has made certain specific observations to the contrary, would that not be rebuttal?

Mr. PAGE: This examination has not been made since the testimony?

Mr. MATHEWSON: That is a single page. If you read the record there you will see that his testimony was to minimize any effect from the currents from the elevated road. There is no doubt about it at all. I am directing this, and the following testimony, directly to that point. It is not any general testimony.

The MASTER: I am disposed to overrule the objection. I may be wrong without the record before me.

5775 Mr. PAGE: Well, I will take an exception. I suppose the objection that I have made that this is not proper rebuttal and that they testified on their direct case and brought up this question of the present condition of electrolysis, and the necessity of their having a large reserve because of the depreciation occasioned by it—

it seems to me they had all these investigations and they should have put in this testimony at that time, and they are no part of their case in rebuttal.

Mr. MATHEWSON: We are rebutting specific testimony of your witnesses as to specific structures.

The MASTER: I will allow it.

Mr. PAGE: Exception.

Q. What does this map show, Mr. Maxwell?

A. The direction and magnitude of current flowing on lead cable sheaths.

Q. Along the line of the elevated railway?

A. Yes, sir.

Q. As shown on this map marked elevated railway?

A. Yes.

Q. And did you test those currents to see to what point they were returning?

A. Yes, sir.

Q. And do these dotted lines along here so indicate?

A. No, sir; the arrow indicates.

Q. The arrow indicates?

A. Yes, sir.

Q. What was the direction of the current coming from this line along the elevated?

A. Towards the Spring Street substation of the elevated road.

Q. Did you trace it along to that point?

A. Yes, sir.

Q. Are there any other structures, or figures or letters that do not explain themselves on that map which you wish to explain?

A. I think not, except that this dotted line here is the negative feeder from the substation to the west side elevated, that is about all.

5776

By Mr. BURR:

Q. What street does that dotted line run through?

A. That is Spring Street.

Mr. MATHEWSON: I offer it in evidence.

By Mr. BURR:

Q. When was that map made?

Mr. MATHEWSON: In April, 1906.

Mr. PAGE: I want the Master to bear in mind that date, because this is admitted, I presume, on the assumption that it contradicts the prophecy of Mr. Sever, which has been made this winter.

Mr. MATHEWSON: And Mr. Marks' testimony, that there was no such thing as electrolysis which came from the elevated, etc.

Paper received and marked Complainant's Exhibit 303.

By Mr. MATHEWSON:

Q. Now, did you, in July, 1906, examine, lay bare and take up

certain lengths of gas service pipe close to the pillars of the elevated railway within the section indicated by this map?

A. Yes, sir.

Mr. PAGE: This is objected to. Certainly we have not brought any gas pipes in here.

Mr. MATHEWSON: We do not have to proceed exactly along the tangible line; we can produce evidence that is competent.

Mr. PAGE: As I understand it, in the direct case they have got to produce whatever evidence they have. They cannot put a
5777 man on the stand and say there is such a thing as electrolysis, and then come along afterwards and put in all the evidence they had in their possession at the time.

The MASTER: You need not argue to me that it is the business of the complainant to exhaust his case when he presents it. The only thing is, it seems to me, so far as I can now judge and according to my best recollection of the testimony, that there were some new suggestions brought out in your case about the relations of the elevated road to some of these other structures and this question of electrolysis, and it seems to me, as I now recall, that this is proper rebuttal.

Mr. PAGE: Mr. Simpson testified distinctly as to certain places along the elevated road that he discovered this electrolysis.

Mr. MATHEWSON: Under the Brooklyn Bridge?

Mr. BURR: Two instances, one on Church Street and the Brooklyn Bridge.

Mr. MATHEWSON: Due to the Brooklyn Bridge?

Mr. PAGE: No, due to the elevated railroad.

Mr. BURR: And we met that contention by whatever testimony we could offer. Now, this opening up the whole subject of electrolysis is what they should have done in the beginning.

Mr. MATHEWSON: I do not want to argue it at length, but it seems to me so clearly in rebuttal where you bring evidence trying to negative different propositions as responsible for the electrolysis, like the Subway, it could not do it; the elevated, no, nothing serious could happen from it; and Mr. Marks' testimony to the same effect
5778 if we can show that that particular elevated is doing damage, not the general proposition that there is electrolysis, but this particular testimony, it is competent.

Mr. PAGE: That is what you are bringing in now, bringing in your pipe to show that.

Mr. MATHEWSON: No, at this particular place.

Mr. PAGE: They produced a witness who knew very little, and they opened it up and left it, and if they had the witnesses who knew more they should have exhausted their case on a subject which they opened up themselves, and not have reserved the principal part of their case for rebuttal when they claim we shall not rebut their rebuttal testimony.

Mr. MATHEWSON: We did not know you were going to discriminate and say it did not come from the elevated. This shows that the testimony your witnesses gave was utterly incorrect, and it undermines the value of all his conclusions.

Mr. BURR: Objected to as incompetent, irrelevant and immaterial and not proper rebuttal.

The MASTER: Objection overruled.

Exception to the defendant.

Q. And have you those pieces of pipe in court?

A. Yes, sir.

Q. Now, the first one to which I call your attention is the one taken up at 432 West Broadway. Did you take up a pipe there?

A. Yes.

Q. Was that a one and one-quarter inch gas service pipe?

A. Yes, sir.

Q. Will you produce that?

A. That is the pipe (producing pipe).

Q. Are there pittings in that pipe?

A. Yes, sir, these and a number of other lighter pits (indicating).

5779 Mr. MATHEWSON: I ask that that be marked as an exhibit?

Mr. BURR: I object to this being received in evidence because the testimony already in this case is that pitting may be due to other causes than electrolysis.

Mr. MATHEWSON: That we will show, if you will give us a chance.

Mr. BURR: You are showing some pittings and you want to show that those are due to electrolysis and nothing else, before it will be proper.

Objection overruled. Exception.

Pipe received in evidence and marked Complainant's Exhibit 304.

Q. Have you indicated by a drawing the location of that pipe as related to the elevated pillars, with the distances?

A. Yes.

Q. Is Fig. 1 that drawing?

A. That is Fig. 1 in this blue-print.

Q. And did you check the measurements so that you know they are correct?

A. Yes.

Q. Those were marked under your supervision, taken up, and then the measurements that were made by you were under your direction transcribed to this Fig. 1, were they?

A. Yes.

Q. So does that accurately indicate the situation?

A. Accurately, yes, sir.

Mr. MATHEWSON: I offer it in evidence.

Mr. BURR: I make the same objection to that.

Objection overruled. Exception.

Paper marked Complainant's Exhibit 305.

Q. Fig 1 shows the location of this pipe and electrical readings, is that so?

A. Yes.

5780 Q. Is this true with each other drawing which you present in regard to each of these other pipes you have referred to?

A. Yes, there is a drawing to cover each of the samples of pipe.
Q. Did you also take up a three-inch gas service at 476 West Broadway?
A. Yes, sir.
Q. Are there pittings on that?
A. Yes.
Q. Will you produce that?
A. Yes (producing pipe).
Q. Will you show us the pittings in that pipe?
A. There, and there, and there (indicating). Those are the pittings in that pipe.
Q. The pipe just previously shown was pitted through, do you remember?
A. That one, I think, has a hold in it. I don't remember at the moment but my impression is that it has.
Q. Is this pitted through, that you have, or merely pitted into the metal?
A. It is merely pitted into the metal. I do not think it is through in any place.

Mr. MATHEWSON: I offer that in evidence.
Same objection. Same ruling.
Exception.
Pipe received in evidence and marked Complainant's Exhibit 306.

Q. And this Figure II., which I show you, represents the same matter in reference to the location?
A. The electrical and location measurements both for this exhibit.

Mr. MATHEWSON: I offer that in evidence.
Mr. BURR: Same objection.
The MASTER: Same ruling.
Exception.
Paper marked Complainant's Exhibit 307.
Mr. MATHEWSON: I understand you have the same objection to all of this testimony?
The MASTER: Yes.

5781 Q. Did you also remove a one and one-half inch service pipe from 454 West Broadway?
A. Yes.
Q. Will you produce that?
A. Yes.

(Producing pipe.)

Q. That is pitted in some places through the pipe?
A. No, sir, that is not through, but it is very deeply scored.
Q. Wait a moment, I have a memorandum that it is. Just see if the pipe or fitting is not pitted through in some spot or spots?
A. Very nearly through in a number of places. I do not find that it is clear through anywhere, no sir.

Mr. MATHEWSON: I offer that in evidence.
Same objection and ruling.
Exception.

Pipe marked Exhibits 308-A and 308-B.

Q. Is figure III the figure showing the electrical and location measurements in regard to that pipe?
A. Yes, sir, the same as in the previous cases.

Mr. MATHEWSON: Now, I offer that in evidence.
Same objection and ruling.
Exception.
Paper marked Complainant's Exhibit 309.

Q. Did you also remove a nipple and coupling from a two-inch service from 414 West Broadway, which shows deep pitting?
A. Yes.

(Producing pipe.)

Mr. MATHEWSON: I offer that in evidence, also the corresponding drawing.
Same objection and ruling.
Exception.
Pipe received in evidence and marked Complainant's Exhibit 310.
5782 Drawing received in evidence and marked Complainant's Exhibit 311.

Q. Did you also remove an inch and a quarter service pipe at 448 West Broadway, and if so, produce it?
A. Yes, sir.

(Producing pipe.)

Q. This shows a hole pitted entirely through, does it not?
A. Yes, sir, clear through the wall of the pipe.

Mr. MATHEWSON: I offer it in evidence.
Same objection and ruling.
Exception.
Pipe received in evidence and marked Complainant's Exhibit 312.

Q. Figure V gives the same measurements for this pipe?
A. Yes.

Mr. MATHEWSON: I offer it in evidence.
Same objection and ruling.
Exception.
Paper received in evidence and marked Complainant's Exhibit No. 313.

Q. Did you also remove an inch and a half service 454 West Broadway?
A. Yes, sir.
Q. Produce that please?

(Witness produces pipe.)

A. This included a fitting.
Q. That shows pitting?
A. Yes, sir.
Q. In various places, does it not?

A. Pretty generally all over the whole length of the pipe.

Mr. MATHEWSON: I offer that in evidence together with the accompanying drawing.

5783 Mr. BURR:
Same ruling.
Exception.
Pipe marked Complainant's Exhibit 314.
Drawing marked Complainant' Exhibit 315.

Q. Did you take a 2½-inch valve and fittings from the gas pipe at 476 West Broadway?
A. Yes, sir.
Q. Will you produce that please?
A. That is No. 7, I think.
Q. Yes.

The pipe is produced.
Mr. MATHEWSON: I offer that in evidence.
The WITNESS: This is the service from 476 West Broadway.
Received in evidence and marked Complainant's Exhibit 316A and 316B.
Mr. PAGE: Wasn't Exhibit 306 from 476 West Broadway?
Mr. MATHEWSON: Yes. This is some more.

Q. Then this last exhibit appears on the second sketch (Exhibit 307)?
A. Sketch 2; yes, sir.
Q. Did you also take a one-inch gas service from 496 West Broadway?
A. Yes, sir.
Q. Produce that please?
A. This is the one inch service from 496 West Broadway (producing same).
Q. Does that show pitting entirely through the pipe?
A. Yes, sir. There is a hole in it in one place.
Q. And is the location and measure of that shown on this figure 7?
A. Shown in figure 7; yes, sir.

Mr. MATHEWSON: I offer that in evidence.
Received in evidence and marked (pipe) Complainant's Exhibit 317, and (drawing) Complainant's Exhibit 318.

5784 Q. And this appears on F-gure 7, does it?
A. Yes, sir.
Q. Have you also a one-inch gas service which you took from 496 West Broadway, a further one?
A. Yes, sir.

At 5 p. m. adjourned to Saturday, January 19th, 1907, at 11 a. m.

Last Exhibits:

Complainant's, 318.
State's, 000.
City's, 236.

5785 Circuit Court of the United States, Southern District of New York.

CONSOLIDATED GAS COMPANY OF NEW YORK, Complainant,
vs.
JULIUS M. MAYER, as Attorney General of the State of New York; WILLIAM TRAVERS JEROME as District Attorney of New York County; FREDERICK E. GUNNISON, JOHN C. DAVIES, and LUCIAN L. SHEDDEN, Constituting the New York State Commission of Gas and Electricity, and THE CITY OF NEW YORK, Defendants.

Before Arthur H. Masten, Special Master.

NEW YORK, *January 19th*, 1907—11:00 a. m.

Met pursuant to adjournment.

Present: The Master, Mr. Mathewson, Mr. Burr, Mr. Page, Mr. Kirby.

5786 JOHN W. LIEB, JR., recalled for further examination.

Cross-examination by Mr. BURR:

Q. Do I understand you correctly to say and to mean that stray currents from your wires can be accurately located, and were accurately located as a result of the examination made by Mr. Varely in 1902 and 1903?

A. I stated that we had made careful tests to locate and to measure differences of potential in all parts of our system, with a view to learning what the electrolytic conditions might be as affected by the grounding of our neutrals in our feeder junction boxes. That was my statement.

Q. And I understood you to say, as a result of that examination, that you had no wandering currents?

A. Not of any significance, no sir.

Q. So that if there was any damage, in other words, due by reason of wandering currents to the mains of this gas company, or to any other gas company, it could not be attributed to you?

A. Yes, sir.

Q. That is the point?

A. That is my statement, yes sir.

Q. And I further understood you to say that in your opinion those wandering currents which may or may not cause damage to the mains were currents belonging to other companies, the subway company and the L structure, and currents which came across and affected the northern part of the city, coming over from the Bronx?

A. I made that statement, excepting in reference to the subway; I don't think I referred to the Rapid Transit subway in any way.

Q. In other words, in order to make it clearer, speaking now to you as an electrical authority, is it possible to locate the currents which affect the mains in the streets of the city?

A. Not in all cases directly. We located in these surveys,
5787 making a survey first under one set of conditions, then a variable condition came into effect, to wit, the operation of the elevated railroad, their electrification; then we made another survey showing a changed condition of affairs, a kind of "before and after using" test, and, therefore, it is logical, other conditions having remained the same, to attribute the changed conditions to the new factor which had come in. In others of our surveys which have been referred to and which will probably be referred to in detail later, we were able to make a very direct, exact and local designation of where the currents came from and where they went to.

Q. Now give me the particulars of that, as that is what I wanted to clear up?

A. In examining the electrolytic surveys that have been presented in evidence, and still others that were made, we were led to believe that among the points where destructive electrolysis was likely to be at work, and the points at which the conditions for such electrolytic destruction were favorable, was, among others, the neighborhood of Spring Street and West Broadway. We were led to that conclusion——

Q. Was that because of the presence of the elevated structure at that point?

A. It is because of the presence immediately near there of a sub-station of the elevated railroad, which sent its current on the elevated structure, and in conjunction with the elevated structure itself. We were led to this conclusion not only by the potential tests that have been referred to but also by the fact that we actually found the lead covered cables of the New York Edison Company carrying consid-rable currents. Therefore under my instructions our people were instructed to at once inspect the lead cables of the New York Edison
Company and the sub-surface structures immediately in front
5788 of the sub-station of the Manhattan——

Q. What do you mean by the Manhattan.

A. The Manhattan Elevated Railroad.

By Mr. MATHEWSON:

Q. What station?

A. Near Spring Street and Broadway—West Broadway.

Q. You can refer it to anything you have here, if you wish (witness consults a blue print).

Senator PAGE: What exhibit is this?

Mr. MATHEWSON: Complainant's Exhibit 303.

The WITESS: They at once investigated the Edison lead covered cables that ran along in front of that station, and they found this condition of affairs as found by this Exhibit.

Mr. MATHEWSON: Do not call it an exhibit—this pipe.

The WITNESS: Well, this pipe. This is a piece of a high tension conductor of the New York Edison Company's system, and shows here (indicating) a very characteristic pitting which was to be recognized at once as electrolytic in its character——

Mr. BURR: I object to the characterization.

Mr. MATHEWSON: This man is an expert. You have asked him a question.

Mr. BURR: I have not asked him to characterize the symptoms or things which he sees on that pipe. I am asking—in fact, I think Mr. Lieb is going a little beyond what I have asked him. I have not asked him with regard to what conditions you find that pipe to have and to present at this moment. The point I have tried to clear up is whether it is possible for you, representing the Edison Com-
5789 pany, having shown to your own satisfaction at least that your wandering currents do not affect the gas mains, whether it is possible for someone on behalf of the Consolidated Gas Company, equally capable with you, to locate the wandering currents, which they claim affect their mains.

The WITNESS: I am coming right to that in one moment. I am leading up to show how we were able to locate them, and show you physically the process of location. Here we found a perforation which ruined this piece of cable and, therefore, it was cut loose——

Mr. MATHEWSON: Will you show that to the Master, the perforation on this lead?

The WITNESS: That is a high conductor cable (showing pipe to the Master), and it is very heavily insulated with paper insulation. It carries 6,600 volts. Alongside of it there was another which also is in this same category. Now, this cable was located in this position in reference to the power house. The power house was immediately right in front of this place——

Mr. MATHEWSON: The centre of the pipe.

By Mr. BURR:

Q. That is, the Manhattan power house was directly in front of this pipe?

A. In the street, yes, sir; and the current that was running and traveling on this lead cable was found to be coming down this lead cable to this point——

By Mr. MATHEWSON:

Q. That is, the middle of the pipe?

A. Yes. The current came down the lead pipe to the point
5790 indicated by the major electrolytic pitting, when it left the pipe to go into the elevated railway power house, and there was no current flowing beyond that.

Q. Now, just show the pitting from one end to the other where the current was flowing, and this end being perfectly smooth?

A. This is where the current came down and here is where it left the pipe to go into the power house (illustrating and indicating). Beyond this by measurements there were no currents found to be flowing in the lead pipe (indicating point of major pitting).

By Mr. BURR:

Q. So that made it certain in your mind that the current which affected that pipe came from the substation of the Manhattan L?

A. Yes, sir.

Q. And can these wandering currents be controlled?

A. Within limit.

Q. Are they not being controlled to-day by the Manhattan L?

A. No, sir.

Q. Are they not installing a system to control the wandering currents on the Manhattan L?

A. I understand that changes and improvements are now in progress of being done with that end in view.

Q. But from an inspection made by you on behalf of your company you can easily locate the wandering currents that were affecting your mains or pipes or conduits?

A. I could very easily make tests so as to determine if any such conditions obtained and if they were due to our system.

Q. Or if the pitting effects which you have described here on your pipes were caused by anybody else you could locate those other currents belonging to other companies?

A. Yes, within certain limits, of course. That is owing to the fact that we can in any given section remove our—what we might call intentional connections to ground and render our system entirely isolated, which——

5791 Q. And that would be true equally as well with regard to the northern part of the Borough of Manhattan as with regard to the southern part?

A. Yes, but it is not possible with some of the other systems, so that their localization is rather more difficult.

Q. But if you wanted to know where the damage was coming from to your pipes you could locate from whence that damage arose or where it came from?

A. Yes.

Q. Now, with regard to Mr. Maxwell, Mr. Maxwell has been in your employ for some years?

A. Yes.

Q. The reason I call your attention to it is, in reading over the testimony of Mr. Simpson I see that Mr. Maxwell is the man to whom Mr. Simpson called attention in the two instances of Spring and Church Streets, and at the Brooklyn Bridge in the two pittings of which he spoke in his direct examination, so I suppose that is the same Mr. Maxwell who was consulted in that regard?

A. I suppose so, because Mr. Maxwell is in charge of our Testing Department, and I sent him to Mr. Simpson to confer with him relative to the opening of the street for the purpose of these investigations.

Q. So that whatever knowledge Mr. Maxwell has now with regard to this matter, Mr. Simpson had at the time he testified?

Mr. MATHEWSON: How does he know that?

Mr. BURR: He knows I don't want him to tell the impossible. I do not assume he is a mindreader.

Mr. MATHEWSON: Well, exactly.

Q. Do you know whether Mr. Simpson has that information which Mr. Maxwell procured from the examination of these pipes?

A. I have reason to assume a lot of it he didn't know anything about.

5792 Q. Do you know whether Mr. Simpson knew of the examination made by Mr. Varely in 1902 and 1903?

A. Oh, yes, he knew that that work was under way.

By Mr. PAGE:

Q. The pitting by electrolysis is occasioned by the current leaving the pipe or conductor?

A. Yes.

Q. And not by it entering it?

A. No, sir.

Q. On West Broadway you have these lead sheathed cables?

A. Yes, sir.

Q. Running the full length of it?

A. Yes, sir.

Q. And the currents that travel along down West Broadway to the power house at Spring Street would leave the cable at the power house?

A. Yes.

Q. And would enter the cable or get from the cable if it came from the elevated structure along the line above that?

A. I did not quite catch that.

Q. I say if it came from the elevated structure it would enter the point——

A. At some point above, that is very true.

Q. So lead is a much better conductor of electric current than iron, is it not?

A. I am quite sure in my mind as to the relative conductivity of lead and iron. Copper of course is very much better than either. Off-hand I think—well, I am not sure. I am not sure enough to make a statement as to that, which has the better conductivity of the two. That is a well known physical fact, that——

Q. What is?

A. That each has a definitely assigned conductivity, and any text book or reference book which shows what it is, what the relative conductivities are. I haven't in mine exactly their relations in the scale of conductivity. I can answer that question right off-hand by asking one of our people, if you will permit me to, if you wish to get that information.

5793 Q. It is just as you prefer, Mr. Lieb.

The WITNESS: Professor?

Mr. GANS: Lead is about 9 and iron from 10 to 15.

Q. Now, interpreted in to English that means what?

A. That the conductivity—the resistance—I will have to ask the Professor whether he means in that statement the relative resistance.

Mr. GANS: Yes, or reversely, conductivity; the question was of resistance.

The WITNESS: That if the resistance of a given length of iron pipe were 9 or 10, the resistance of a given length of the same section of lead would be 10 to 12 or 13.

Q. I think you have that just reversed. Professor Gans says lead is about 9 and iron from 10 to 15.

Mr. GANS: Copper being 100.

The WITNESS: Then the conductivity of lead, 10 to 12 per cent. more than the same section of iron.

Q. And where there are two mediums of conductivity, the electricity follows the line of least resistance, does it not?

A. Yes, sir, generally.

Q. And would go on the lead in preference to the iron if they were in the same street?

A. Yes, and if both had the same cross sections of conducting medium, yes.

Q. What do you mean by cross section of conducting medium, do you mean the thickness of the pipe?

A. Yes, sir.

Q. For instance, thickness of the iron pipe as compared with the lead pipe?

A. Yes. If iron were the poorer conductor, if there happened to be more of it, of course it might overbalance its lesser conductivity.

5794 By Mr. MATHEWSON:

Q. Referring to the improvements which are in process on the elevated, and to which Professor Sever also referred, I will ask you whether in your judgment those improvements will insulate the elevated structure so that currents will not escape to the street?

A. I anticipate that they will result in an improvement of the conditions.

Q. Yes, that is not the question quite; whether it will insulate the structure so that some current will not escape to the street?

A. There may still be some; that is a question to be verified by further tests after the changes have been made.

Q. Referring to these lead pipes, which you have produced, could the pitting, as indicated there, possibly be due to the Edison current which is carried within the pipe as insulated?

A. No, sir.

Q. And referring to the charts introduced by Mr. Maxwell and to which you referred, what is there in those charts or the measurements or figures which indicates that the current comes from the elevated (handing paper)?

A. There are a number of indications here on Complainant's Exhibit 303, notably, which show the facts that all of the current in this section——

By Mr. BURR:

Q. What section is that?

A. Well, around about the Manhattan sub-station (indicating).

Q. When you show with your hands making a circle, describe the areas you desire to embrace?

A. Well, practically the area covered by the map.

Q. Complainant's Exhibit 303?

A. Yes. All of this map. The arrows indicate that in the territory covered by the map all of the currents are coming and tending

towards the elevated railroad substation, as you see here (in-
5795 dicating). You see all these arrows are coming in here, this goes up and this goes down, and this goes in this direction, and this goes in that direction, and this you see comes here and this here (indicating) they are all tending to return to the sub-station.

Q. The elevated sub-station?

A. Yes. And a similar condition of affairs is indicated by these other charts.

By Mr. MATHEWSON:

Q. In reference to the different conductivity of lead or iron, Ohm's law, I think it is, is it not, states that a current will not all follow the line of greatest conductivity but that it will divide up among different conductors inversely in proportion to their conductivity?

A. That is true.

Q. Or in direct proportion to their conductivity?

A. That is true.

Q. And so even if there were both lead and iron of the same diameter each would carry a current in proportion to its conductivity?

A. Yes.

By Mr. BURR:

Q. Have you a sample of this soil from which the two pipes were taken which you have just had in your hand, those lead pipes, or can you tell the kind of soil they reposed in?

A. If my memory served me right, there were samples of that soil taken; I believe also that it was subjected to analysis.

By Mr. MATHEWSON:

Q. You have not it here?

A. No, sir; I have only a vague recollection of the circumstances.

By Mr. BURR:

Q. You did not take those up yourself I understand?

A. I did not.

5796 Q. So that you cannot say yourself as to where the exact location was that these pipes were taken.

Mr. MATHEWSON: I have some one who can.

A. I was not present when these were removed, no, sir.

By Mr. PAGE:

Q. Your answer to Mr. Mathewson's question that where there are two conductors of different conductivity, that the current will divide up, supposes, does it not, that both conductors are continuous?

A. Certainly.

Q. And not broken by joints?

A. Certainly.

Q. And if there is a continuous conductor that would be of greater conductivity, that is continuous, and another conductor of less conductivity that is broken by joints, the condition would be different?

A. Yes, that would bear on the effect of the general expression of their conductivity as a whole.

By Mr. MATHEWSON:

Q. If the joints were conductors also that would not make any difference, that would be like a continuous sheath?

A. No, if the joints were ample in section and material, the joints might be as good a conductor as the body of the pipe.

Q. Mr. Burr interrupted you just as you were about to say what those pittings were on the lead pipe; that is to say, to what action they were due. Can you from your experience and knowledge of the electrical business say whether those pittings are due to electrolytic action or something else?

A. In my judgment they bear all the earmarks of electrolytic decomposition.

By Mr. BURR:

Q. I would rather that you should ask that question than
5797 that I should, but, having answered it, I want to ask about that. What leads you to believe that that is entirely or substantially due to electrolytic condition?

A. Well, my general experience, we having seen very many cases, we having seen the effects of actually passing current through lead conductors and seeing their effect and comparing them with the effects which were produced by ordinary depreciation due to subsoil conditions alone.

Q. Well, what do you mean exactly by pittings?

A. I mean the removal of the material in spots, giving it the appearance of being eaten out, not uniformly.

Q. Have you ever had any experience with gas mains at all?

A. Not excepting the seeing of the effect of both electrolytic decomposition and subsoil condition alone in iron pipes as they are laid in the ground, and——

Q. Are you aware that gas mains were affected in a similar manner, that is so far as pitting is concerned, before the introduction of electricity?

A. As I said before, the character of the pitting is somewhat different, and the electrolytic pitting has different characteristics from the ordinary sub-soil pitting or depreciation.

Q. Don't you know the character of the soil affects the duration of the main, or affects its condition?

A. It does to a degree, yes, sir.

Q. And causes pitting?

A. It may cause pitting, depending upon the character, but not pitting of this character.

Q. And it is not true that the action where there is no electricity, but where the pitting is caused by the soil, that that is due to electrical agency, by each of the numerous particles of carbon being in contact with the iron, which, aided by the moisture, forms little batteries and produce the rapid decay?

A. I would consider that to be rather hypothetical. I
5798 should not look for electricity as an operating agent, but simply consider it was a chemical action.

Q. I call your attention to a book which I hold in my hand, entitled *Gas and Gas Works*, by Hughes & O'Connor, published in London by Crosby, Lockwood & Son, in 1904, in which this statement appears, and ask you if you agree with the statement which I read:

"There are, however, certain destructive agencies which materially affect the durability of mains; thus it is said that the worst of all ground in which pipes can be laid is 'that containing ashes, cinders and moisture; in these the pipes are speedily covered with marks throughout, similar to pock marks, some of which eventually penetrate the metal. This action is undoubtedly due to electrical agency, by each of the numerous particles of carbon being in contact with the iron, which, aided by the moisture, form little batteries, and produce the rapid decay.' In sandy, saline ground a coat of oxide forms itself on the exterior, which materially diminishes the thickness of the iron of the pipe, but the metal does not alter in its nature. In made ground, cast-iron pipes become rotten and soft. Lastly, in clayey soil the iron is kept in an extraordinary state of preservation, and we have known pipes to be embedded in clay, with a view of their preservation. Therefore, the duration of mains depends entirely on the soil in which they are laid."

Do you agree with that proposition as laid down there?

A. I agree wtih that largely, excepting the somewhat hypothetical bringing in ordinary chamical action—bringing in electricity as an
5799 agent. I think that is hypothetical. I have seen just those conditions that are referred there, depreciation of iron in contact with ashes and water in the attempt to convey material, wet ashes, in conveyors without being in the ground at all; I consider that a mere case of chemical action.

Q. Have you ever seen pitted pipe from breweries or ice manufacturing establishments?

A. Not that I remember.

Q. Do you know that boiler plates pit in the presence of purest water?

A. Yes, sir.

Q. Do you know of any causes outside of what you have just stated of pitting where there could not be any extraneous current of electricity?

A. Well, I have said that I believed that pitting of a certain character could proceed without the interposition of a current of electricity.

Q. Can you say what pitting would have happened to your pipe exhibit here, assuming there was no extraneous electric current?

A. I would say the condition would be not at all as shown in the exhibits.

Q. By that you embrace all the exhibits, these pipes, do you?

A. Yes, I refer to them all.

Q. Can you describe accurately what the difference is in the pit-

ting arising from extraneous electrical currents, and what arises from internal action of the soil and so forth, as I have mentioned?

A. Well, it is a little hard to describe that in words, it being rather an appearance; but in general a pitting that is caused by subsoil conditions is apt to be more of the character of a flaky—larger areas are involved. The material is more apt to come away in flakes, more like the ordinary rusting, or oxidation of iron. It is very much less likely to be in clearly defined removal holes of the material with a clear cut eaten contour. These effects are somewhat different. One is apt to be flaky and the other is apt to be more of the char-
5800 acter of a true pitting, and very seldom will you find a merely chemical pitting that has the shape of a hole; quite a local hole with clearly defined sharp contours, as is apt to be the case with electroyltic corrosion.

By Mr. MATHEWSON:

Q. Sort of a crater?

A. Yes, a volcanic crater is a fair analogy of the effects that are observable.

By Mr. BURR:

Q. Mr. Simpson testified, he being the superintendent of mains of the Consolidated Gas Company, that in all his experience he saw only two instances of what might be called pitting, and of course he did not claim to be an electrical expert, and did not know whether that pitting was actually due to the action of electricity or not, but he said inferentially that that is what he understood from Mr. Maxwell. Now, as a matter of fact there are not a great many cases of pitting in the City of New York, are there?

A. Having seen a very large number of tubes, iron tubes, Edison tubes, removed from various sections of the city I have observed very, very little of that. I have in my experience observed some cases of that where pipe in very peculiar soil, which were the detritus of past ages, and giving a very strong acid re-action, as well as that might interest the archæologist. I have seen in such soils rather unusual cases of iron pipe being eaten up, but that is not the case in New York City.

Q. Mr. Simpson says there was one case two years ago right in front of the Brooklyn Bridge, right in front of the Park Row entrance, and the other was at the corner of Church Street and Spring. Those are all the cases he was able to find, though he had
5801 seen ninety per cent. of the mains of the Consolidated Gas Company.

Mr. MATHEWSON: Not within the last two or three years, since this electrical condition has existed. Our claim is that the situation is now present, that we have got to provide for it in the future, that it is just occurring, beginning and begun. That is the point, not that it was fifteen, twenty or ten years ago.

Mr. BURR: But I understand it has been obviated and removed so far as this witness' company is concerned and——

Mr. MATHEWSON: Not at all.

Mr. BURR: And that the other companies are adopting precautions which will remove it so far as the L structure is concerned.

Mr. MATHEWSON: No.

Q. Have you explained as fully as you care to the difference between pittings caused by wandering electrical current and pittings caused by subsoil conditions?

A. My description is as near as I can put it in words, from the very numerous cases that I have seen and have seen illustrated.

By Mr. MATHEWSON:

Q. It is much easier to detect the difference in the character of pittings than it is to describe it, is it not?

A. Yes, sir.

Q. It is a matter of the eye?

A. Yes, it is fairly well defined, it is characteristic.

Mr. BURR: If it can be seen, I should think it could be described.

Mr. MATHEWSON: It is difficult to describe some things we can see.

5802 Q. These services or pipes which have been here presented and which have been put in evidence and the others which are here are all wrought iron, aren't they, if you know?

A. Yes, they are.

Q. While the mains of the Consolidated Gas Company are cast iron?

A. Yes.

Q. Now, the electrolytic action when it reaches dangerous proportions would be first observable in its effect on wrought iron, would it not?

A. Yes.

Q. That is more subject to deterioration than cast iron?

A. Well, there are other elements. Cast iron, due to its making, has a kind of thin coat which acts for a certain time as a kind of protective coating, so that electrolytic corrosion does not take hold of a gas pipe quite as quickly on account of the difference in the service presented.

ALEXANDER MAXWELL resumed.

By Mr. MATHEWSON:

Q. You said at the conclusion of yesterday's testimony that you also had a one-inch gas service which was also taken from 496 West Broadway?

A. Yes, sir.

Q. And the location of that with the electrical readings also appear on Figure 7, I think, which is Complainant's Exhibit 318; is that right?

A. Yes, sir, that is correct.

Q. Now, there is a hole in this pipe, is there not?

A. Yes, sir.

Q. Is that the long pipe?

A. Yes, sir.
Q. Will you point out the hole up there?
A. Here (indicating).
Q. That is quite a distinct hole, isn't it?
A. Yes, sir.

5803 Mr. MATHEWSON: I offer the pipe in evidence.
Mr. BURR: Same objection.
The MASTER: Same ruling.
Mr. BURR: Exception.
Pipe received in evidence and marked Complainant's Exhibit 319.

Q. Did you also take a two-inch service pipe from in front of 428 West Broadway?
A. Yes, sir.
Q. Will you produce that pipe?
A. Yes.

(Witness produces pipe.)
Mr. BURR: Do I understand Mr. Maxwell is the man who removed the pipes?
Mr. MATHEWSON: Yes, he saw them removed and labelled them and everything. I will ask a general question as to that a little later. I offer that pipe in evidence.
Mr. BURR: Same objection.
Same ruling. Exception.
Pipe received in evidence and marked Complainant's Exhibit 320*a* and 320*b*.

Q. There is a hole in this pipe 320*a*, is there not?
A. Yes, sir.
Q. Where the wire goes through?
A. Yes, sir.
Q. And that is found, as to electrical readings and locations, on Figure 8, which I show you, is it not?
A. Yes, sir.

Mr. MATHEWSON: I offer that in evidence.
Paper received in evidence and marked Complainant's Exhibit No. 321.

Q. Now, Mr. Maxwell, to be brief, I want to ask you whether you pointed out the pipes in each one of the instances where you have introduced pipes here, for the workmen to remove?
A. Yes, sir.
5804 Q. And you selected the pipe at that point?
A. Yes, sir.
Q. Was it removed under your supervision?
A. Yes, sir.
Q. Were these different pieces of pipe marked and tagged in your presence?
A. Yes, sir.
Q. And you know they came from the locations which are indicated?
A. Yes, sir.

Q. And which are shown on these exhibits which you have testified?

A. Yes, sir.

Q. Now, what led you to go to this particular section and have pipes uncovered for the purpose of examining them?

A. I had previously made electrical potential readings which indicated that section of the city as a section in which I would be quite likely to find electrolytic action.

Q. The conditions so far as your readings before removal of pipe showed them, seemed favorable, did they, for such action?

A. Yes, sir.

Q. You had previously made tests at Grand Street and West Broadway, had you not?

A. Yes, sir.

Q. And did you find there two gas pipes, two six-inch gas pipes, one of wrought iron and one of cast iron, do you remember?

A. Yes, sir.

Q. What was the character of the wrought iron pipe as to being offset around the joints?

A. The offset around the mains, that is, in the two laps, was of wrought iron, and the straight run was cast iron.

Q. Does this figure, which I show you, show the results of the electrical tests at that point?

A. Yes, sir.

Mr. MATHEWSON: I offer that in evidence.

Same objection and ruling.

Exception.

Paper marked Complainant's Exhibit 322.

5805 Q. In addition to these wrought iron services—they are wrought iron, which you have introduced, all of them?

A. Yes, sir.

Q. In addition to these wrought iron services, did you take out or have taken out two lead sections of Edison cables—do you call it?

A. Yes, sir.

Q. Which have been commented upon here and produced here this morning by Mr. Lieb?

A. Yes, I took them out myself.

Q. Will you state where they were located?

A. On the north side of Spring Street between West Broadway and Thompson.

Q. Where, in relation to the substation of the elevated road?

A. The pitted portions which I have here were immediately in front of the elevated substation or within a few feet on either side.

Q. Those two sections that have been introduced?

A. Yes, sir.

Mr. MATHEWSON: I offer them in evidence.

Same objection and ruling.

Exception.

The pipes were received in evidence and the long section of pipe

marked Complainant's Exhibit 323 and the short section of pipe marked Complainant's Exhibit 324.

Q. Now, Mr. Maxwell, you noticed the location of the pittings on these service pipes, did you not, in relation to the elevated pillar, that is to say as to how the pittings were turned, in what direction?

A. Yes, sir.

Q. I will ask you whether the location of the pittings on the services as they lay in the ground relative to the elevated pillar were such as in your judgment would indicate that current was leaving the services and going to the pillar?

A. Quite conclusively, I should say.

5806 Q. How close were the services to the pillars, do they appear on these small maps

A. I think the distances are very generally given; ordinarily three, four or five feet——

Q. Quite close?

A. Six or seven feet in some cases.

Cross-examination by Mr. PAGE:

Q. In order to have the condition that you say, of the current leaving the pipes and going to the elevated structure, the pipes would be positive to the structure, would they not?

A. Yes.

Q. Now, these cables, sections of which you have brought here, are regular cables of the Edison Company that are laid throughout the streets of New York?

A. Yes.

Q. And as I understand it, these are not laid in sections, but are practically a continuous cable?

A. Yes.

Q. Will you take Exhibit 320-B and tell me where you discover the electrolytic action there?

A. Yes, sir. I should say that that was electrolytic action (indicating).

Q. I understand your testimony to be that the electrolytic action takes place on the side of the pipe from which the current leaves it?

A. Yes.

Q. And not on the opposite side?

A. No.

Q. Turn it over. What do you find on the opposite side?

A. Some further action.

Q. Action of what kind?

A. Electrolytic action.

Q. Then as I understand it the current was leaving this pipe in two different directions, is that right?

A. Well, not quite as you state it.

Q. Well, how do you state it, there are opposite sides of the pipe, both showing electrolytic action?

A. Yes, sir. The greater action on the side which was towards the L pillar, the heaviest action.

5807 Q. Yes, but there was also a lighter electrolytic action on the other side?

A. Yes, sir.

Q. And the currents must have been leaving this side then to produce this action?

A. This way, I should say (indicating).

Q. What do you mean to say, that it perfo-med a somersault, and started out this side and jumped over?

A. Probably.

Q. Is it probable?

A. It is the only possible explanation, I should say.

Q. On what do you base that, as to that being the only possible explanation?

A. Well, that the pitting or scoring is evidently electrolytic and that the current, in my opinion, went to the L pillar, and if it went on the off-side of the pipe it must have turned around through the ground and straightened itself out to get to the pillar.

Q. Yes, it must, I suppose, if it did that. Then you think that the current left the pipe, passed through the ground over the top of the pipe to go to the pillar?

A. Yes, sir.

Q. Now, is not the ground of higher resistance than the pipe?

A. In general.

Q. And don't you think it would go on around the pipe, out on the other side rather than pass through the ground, which was of higher resistance than the pipe?

A. Not in this particular case, I should say; no, sir.

Q. As I understand, electrolytic action produces a distinct pitting, while ordinary oxidation covers a larger surface and shows a scaling off?

A. Yes, in general.

Q. Now, on one side of that pipe you say it shows a distinct electrolytic condition?

A. Yes.

Q. That is, on this side?

A. Yes, sir, there (indicating).

5808 Q. Now, do you observe the same on the other, or might that be occasioned by oxidation and the gripping of the tongs in unscrewing it?

A. I should say that that was not oxidation.

Q. That covers a surface of some inch and a half, does it not?

A. Yes, roughly.

Q. And on this side it covers a somewhat larger surface?

A. Yes, sir.

Q. Now, we notice, turning the pipe in this way, there are some marks of deterioration. What are those occasioned by?

A. They are not so definite; I should say that they were probably electrolytic, possibly due to oxidation.

Q. Then I understand that not alone was the electric current leaving this side, but it was also leaving the opposite side and also shooting up into the air from out of the pipe?

A. Yes, sir—up in the earth, not in the air.
Q. Well, up in the earth.

Mr. MATHEWSON: You understand Senator, that this witness has not been called to testify to anything except pipe and the identification of it. I am not introducing him as an expert on this particular subject, and while, if you care to go on I have not any objection——
Mr. PAGE: Yes you have, he testified this was electrolytic action.
Mr. MATHEWSON: I did not ask him any such thing. I asked him about the pipe, and if it showed a hole through it. I have not asked him a word as to whether it was electrolytic action or not. He said those charts showed the readings of the location and the electrical readings. I am calling attention to the fact that you are making him your own witness on this subject.
5809 Mr. PAGE: Not at all, I will take the risk of that on the record. You cannot put a witness on to swear he has taken the readings, and who swears the electricity has left the pipe, and that this is the result of electrolytic action, and then escape cross-examination.
Mr. MATHEWSON: He has not sworn to anything of that kind.
Mr. PAGE: Yes he has.
The MASTER: Well, do not argue about it, gentlemen. He is entitled to cross-examine the witness.

Q. We find, proceeding down about twelve inches, another eruptive condition, we might say, what do you think that is?
A. That might be due to electrolysis, and probably is; possibly oxidation.
Q. Let us see, that is about on a line with the first that you spoke of, is it not?
A. Yes, sir.
Q. Turn around about half way on the pipe from there and we find a considerable pockmarked condition. What is that? Is that electrolytic or oxidation?
A. For those I should say probably oxidation; possibly electrolysis.
Q. Are not these small places more clearly defined and nearer a round hole, or nearer a hole with those edges, or whatever it was that Mr. Lieb said?
A. Yes, sir; they fit Mr. Lieb's definition better.
Q. These fit Mr. Lieb's definition better than the other one you have spoken of, do they not?
A. Yes, sir.
Q. Now, Mr. Lieb is a very eminent expert, is he not, on electricity?
A. Yes, sir.
Q. And if you find a condition in a pipe where the description more nearly answers his description of the effects of electrolysis than these larger places that you specified, would you not be in-
5810 clined to think that these small places were the places where the electrolytic action has taken place?
A. I should say not in this particular exhibit.

Q. You will notice that the extension from the place that you first selected as being surely electrolytic, or what you thought was electrolytic action on top of the pipe, extends continuously for about six inches?

A. Yes.

Q. Now, we will take a look at this, which is Complainant's Exhibit 320A. I understand you are very positive that this hole is occasioned by electrolysis.

Mr. MATHEWSON: He has not stated so at all. I merely asked him if there was a hole and he said there was. He has not stated what it was due to. You are examining him about something he has not testified to on his direct examination.

Mr. PAGE: I am afraid you don't know the questions you asked and the answers he gave.

The MASTER: Well, he can answer it now, or if he cannot he may say so.

Mr. MATHEWSON: I submit this is not cross-examination, and we did not present this man as a witness on that subject.

Q. I call your attention to a place, well, within an inch and a half, of that, where there appear to be some pit marks?

A. Yes.

Q. What do you think that is occasioned by?

A. It is hard to say.

Q. Does that look like electrolytic action to you?

A. Not particularly. It might have been. The exhibit was chosen for the other action there.

Q. Chosen for what other action?

A. The action on the other section of it, which I took to be electrolytic. This was included as part of the pipe.

5811 Q. Comparing this exhibit 320-A with 320-B, the portion that you have stated to be undoubtedly electrolytic, you find great s-milarity?

A. Only a general similarity. I would say there are a number of points of difference.

Q. Can you say that these depressions or holes are occasioned by electrolysis or by erosion, I mean by erosion, rusting?

A. I would hardly care to state it as to these two holes.

Q. On the opposite side of this pipe we find also opposite to the hole a condition of erosion. Is this the case where the electricity was shooting out in all directions and went out on that side of the pipe?

A. That question is very hard to say. This is evidently an exceedingly old service pipe.

Q. Wrought iron service pipes will rust, won't they?

A. No doubt of it.

Q. Laid in any kind of earth. All of these exhibits that you have produced were taken within one block, were they not, except the last cable?

A. One or two—the higher numbers, 496, may go two blocks; I am not quite sure.

Q. How long ago did you remove them?

A. July, 1906.

Q. Between what streets did you take them?
A. As I just said, between Spring and either Prince or Houston, the most of them were between Spring and Prince.
Q. Did you make any observation of the soil there is there?
A. Generally, I saw it, of course.
Q. Is it filled in or is it the original soil?
A. It is the natural soil.
Q. Is it such as the archaeologist would be interested in, as Mr. Lieb said?
A. No, sir.
Q. Now, this long pipe up here, which is Complainant's Exhibit 319; there is a great deal of oxidation on that pipe throughout, isn't there?
5812 A. There is a great deal of oxidation on some parts of it, yes, sir.
Q. Well, extending pretty well the length of the pipe?
A. Yes, sir.
Q. Now, this hole that we discover is a long, narrow hole, that is, when I say long, of considerable length for its width?
A. Yes, sir. .
Q. It is not a distinct pitting, is it?
A. Well, when it goes through it ceases to be a pit, when it comes to be a hole. I think before it went through it would have been a fairly distinct pit, yes, sir.

The MASTER: It is about an inch long.
The WITNESS: Yes.

Q. Don't you find that all around this hole there is considerable oxidation?
A. I am not sure that that is oxidation.
Q. Well, just press that with your thumb nail above and see what you think of it?
A. Yes, it is very soft.
Q. The pipe is very soft, it shows evidence of considerable oxidation, does it not?
A. It might not be oxidation.
Q. Well, what might it be?
A. Where the metal is removed, that might well be due to electrolytic action; I think a great deal of that loose material is dirt and earth caked on there.
Q. Then your idea is that the condition that we find this pipe in all through here is due to electrolytic action?
A. No, no. A good portion of that pipe was within a building, and is undoubtedly oxidation; in the air it was, a portion of it.
Q. What portion was in the air and what portion in the soil?
A. This portion down here, this lower end, was in a vault, and if I am not mistaken the wall came through in this neighborhood, or it went through the wall, rather.
5813 Q. Can you tell from the difference in oxidation which part of it was in the earth and which part was in the air?
A. Yes, sir, I should say there was quite a marked difference

there from the appearance of the pipe there and there and from there up (indicating).

Q. From here up, which is about half way the length of the pipe, and leading towards—what would you call that up there, the hub joint?

A. It is a coupling.

Q. That is, it is cut off on the other side of a joint so it gives that appearance as if it were sticking out?

A. Yes, sir.

Q. Is there not in that end of the pipe a very distinct oxidation all the way from the place where you say it enters the soil?

A. Yes, there is oxidation, although it is not distinct, I should say. A great deal of those irregularities, a great many of them were caked earth. The pipes have not been cleaned; they are practically in the same condition now as when they were taken out of the street.

Q. You can pick this pipe to pieces with your finger nails, can't you?

A. I have not tried it. There is a piece of it, yes.

Q. Now, we find this condition obtaining throughout the length of pipe which was in the soil, of great oxidation, don't we, and places that were quite some pitted. Now, throughout the length is that the action of electrolysis or of oxidation, do you think?

A. The only points I would care to definitely fix upon as electrolysis are some of these deeper marks in the neighborhood of the holes.

Q. You think because there is a hole it must be due to electrolysis, and if there is considerable depreciation throughout that must be due to oxidation?

A. I did not state it quite that way.

Q. Well, you can state it any way you want to.

5814 A. I think that hole and those pittings are electrolytic.

Q. What pittings?

A. In that neighborhood right there (indicating).

Q. Well, there is a more distinct pitting below, is there not, than there is at that point?

A. That is of an altogether different character, from here down, those are irregularities, perhaps they are pits, I should say they were not electrolytic.

Q. What is the very distinct characteristic which conveys to your mind that this one spot must be the result of electrolytic action, whereas similar conditions throughout the pipe do not suggest to you that they are electrolytic?

A. I do not quite understand the question.

Q. (Question repeated.)

A. I do not think the conditions throughout the pipe are similar.

Q. Well, what is the difference, that is the point. Tell us the characteristics of electrolytic action that you see in that one spot?

A. Well, if it can be described, the pits are of quite a different character there within the line down there and what that evidently was before that went through, it would be quite different from the surface of the pipe there and three (indicating).

Q. And you refer to a straight line directly in line with the hole,

a straight line about an inch and a half in length by a sixteenth of an inch in width, do you?

A. Yes, sir.

Q. Now, wrought iron pipe is welded, is it not, along the seam?

A. Yes, sir, to the best of my knowledge.

Q. And there is apt to be more deterioration along the seam than there is in the other part of the pipe, is there not, if it is subjected to oxidation?

A. I am not sure of that.

5815 Q. If that should be the case and you should find that this hole which is long and narrow and this long and narrow streak below being in the same line, would that convey to your mind that it might be along the seam?

A. I think I would want to have it more definitely shown than that; you say it was along the seam.

Q. Now, we will take this Exhibit 320A. Are not the characteristics of this part that you thought was not electrolytic very similar to the conditions around the hole in this Exhibit 319?

A. Not exactly, I should say; no, sir. I should say that this was more nearly similar to the other section.

Q. Well, what about this hole; do you think it is similar to that?

A. Not in all respects, no, sir.

Q. Then you think there is a substantial difference between the hole in Exhibit 320A and the hole in Exhibit 319?

A. Yes, sir.

Q. And such as would suggest to your mind that they arose from different causes?

A. Yes, sir.

Q. How did you remove this Exhibit 320B from the other section?

A. It was cut off.

Q. Cut off here?

A. Cut off there (indicating).

Q. And unscrewed there?

A. And as I remember it, unscrewed there.

Q. And, of course, you did not unscrew it with your own hands?

A. No.

Q. Used a pipe screw?

A. Yes, a pipe tongs; yes, sir.

Q. And was this part Exhibit 320A a part of the same pipe?

A. Yes.

Q. Did these join?

A. They go on through the coupling, I think; I think they were joined in that manner, as nearly as I remember it.

Q. I find a very similar condition on Exhibit 320A as on Exhibit 320B, that the parts that show—I believe you claim electrolytic action on both sides of the coupling, is not that so?

A. Did I claim that?

Q. Yes.

A. I think not.

5816 Q. Did you not claim that the electrical current was gyrating through the ground, climbing over the top of the pipe

and going all around, so as to leave both sides of the pipe at the same time?

A. It left the two points, it probably made contact with the earth, giving preference to the part nearest the elevated pillars.

Q. Don't you find the same condition on the coupling on Exhibit 320-A that you do on Exhibit 320-B?

A. The pipe is all eroded on the coupling, but it looks quite different to me.

Q. Don't you think this action may be occasioned by the gripping of pipe tongs on an old rusty pipe?

A. Hardly, because we chose these exhibits as they lay in the ground before the tongs was put on them.

Q. Here is where the tongs did go on, is it not?

A. I think not. Of course my memory is not exact on that particular point. As I remember it, the way these pipes laid, I think the tongs would have gone on there (indicating).

Q. That is the portion of the pipe which you thought presented some distinct pitting that you think resulted from electrolytic action and looked very much like it, is it not?

A. That was not the distinct part of it, no sir. This was the distinct part of it, in my opinion (indicating).

Q. Yes, I know that was the distinct part, but the other was a very suspicious part, wasn't it?

A. Well, I think I said it might have been electrolytic.

Mr. MATHEWSON: You ought to have taken your hand and not put the nippers on.

Mr. PAGE: No, I don't think he would have produced as good an exhibit for your purposes if he had.

Mr. MATHEWSON: I think he would if he chose the pipe before the tongs were put on at all.

5817 Mr. BURR: These are all wrought iron services, are they?

Mr. MATHEWSON: Yes.

Q. You made this map, Complainant's Exhibit 303, did you?

A. Yes, sir.

Q. I understand that you made tests throughout the city and selected this as probably the most fruitful field. Did you find similar conditions in other parts of the city?

A. Yes, sir, in some parts of the city.

Q. What parts?

A. In the neighborhood of railway substations generally.

By Mr. MATHEWSON:

Q. Elevated railway?

A. Elevated railway, yes, sir.

By Mr. PAGE:

Q. Just state where?

A. The particular substations, do you mean?

Mr. MATHEWSON: Where are the elevated substations?

Q. No, I do not say where are the elevated railway substations,

but at what elevated railway substation did you find a similar condition existing?

A. In the neighborhood of the 53rd Street Interborough, and to a slight degree in the neighborhood of the East 34th Street elevated station; my tests were not very extensive around the 34th Street station.

Q. Have you got the results of your experiments in those other stations?

A. I am not certain about the 34th Street. I have some material relating to 53rd Street.

5818 Mr. PAGE: That is all.

By Mr. BURR:

Q. When you speak of the Interborough stations and Manhattan stations, you mean substations belonging to the same line?

A. Yes, sir. I think I have used the word indifferently; it is the elevated railway substations that I refer to.

Q. Now known as the Interborough Rapid Transit?

A. Yes.

Q. Do you remember when you took up the pipe to which your attention has been called at 342 West Broadway?

A. 432 West Broadway?

Q. Yes.

A. One of these exhibits, do you mean?

Q. Yes.

A. I can tell you the month.

Q. The pipe is marked Exhibit 304. Do you remember the day when you took it from that locality?

A. I do not remember the exact day without referring to my notes, no, sir.

Q. Well, you do recall that it was in July?

A. Yes, sir.

Q. Or was it in April?

A. July.

Q. And after you removed these pipes, were they all removed in July, by the way?

A. Yes, sir.

Q. In the early or latter part of July?

A. Early in July.

Q. Did you call Mr. Simpson's attention to these pipes?

A. Not personally, no sir, not that I remember.

Q. When was it that you had the conversation with Mr. Simpson regarding the pipes and mains of the Consolidated Gas Company?

A. My memory is not quite clear. I saw Mr. Simpson once in May, I know, and I had seen him earlier, but I cannot place the date exactly.

Q. You say you did not see him personally. Do you know who called his attention to these pipes and when?

5819 Mr. MATHEWSON: There is no testimony that anybody called his attention to them. On the contrary, Mr. Lieb said

he doubted it had been. Do not ask your questions in such a way as to mislead the witness.

Mr. BURR: I beg your pardon, I am not misleading the witness. He says he does not know personally that Mr. Simpson saw these pipes, and I ask him if he knows indirectly that Mr. Simpson saw these pipes.

The WITNESS: No, sir.

Q. You had no talk with Mr. Simpson with regard to these pipes at all?

A. No, sir, these pipes.

Q. With regard to these pipes. Have you had talks with regard to any of the pipes and services with Mr. Simpson since July?

A. I think not.

Q. You would not be sure?

A. I am pretty sure.

Q. Do you recall the two instances of pipe that you spoke with Mr. Simpson regarding the one at the Brooklyn Bridge and the other at Church Street and Spring?

A. No, sir; I do not recall that at present.

Q. Did you ever have any such conversation with him?

A. Quite possibly.

Q. But you have no recollection of it?

A. Not at the moment, no, sir.

Q. Do you know what was the character of the soil—I think you said it was not filled ground, it was natural soil at this point?

A. I recognized it as natural soil; I am hardly an expert on that, perhaps.

Mr. MATHEWSON: What point is that.

Mr. BURR: West Broadway.

Q. Do you know the character of the soil you took all these
5820 pieces from? Was the soil in each instance natural soil or filled in soil?

A. In each instance natural soil, to my best memory.

Q. Have you ever seen a pitted pipe which was not at all affected by electricity or which it was not claimed was affected by electricity?

Mr. MATHEWSON: That is a pretty broad question.

Q. In other words, did you ever see a pipe removed from the ground in the City of New York before the use of electricity in the City of New York?

A. Well, I guess I have seen numbers of pipes removed before electricity was introduced in New York; yes, sir; I was not taking notice of pipes in those days.

Q. Has your attention ever been called to a pipe which it was claimed was corroded or pitted or affected in any degree through electric currents, wandering currents, or to another pipe which was affected solely by subsoil conditions?

A. I don't know that that comparison has ever been brought to my direct attention. I have a pretty definite idea of the difference between the two actions myself.

Q. Do you know whether the soil from which you took Exhibit 320A was wet or dry? And I will ask you the same question with regard to 320B?

A. That seems a little difficult to state offhand; it is a matter of degree altogether as to the wetness or dryness.

Q. Well, what is your recollection of it?

A. It was not swampy.

Q. Was it a moist soil?

A. As a matter of fact, it would be a little hard to tell what it would be under normal conditions. We were working on excavation and July was rainy, if you remember, and there was a great deal of surface moisture from time to time. The soil as we saw it,
5821 it was, of course, very wet sometimes, but I do not think that represented its normal condition at all. Really I don't know.

Q. Can you say whether if there was free acidity in the moisture in the soil if pitting would be caused quicker than through electrolysis?

A. Repeat that question.

Q. If there was free acidity in the moisture in the soil, would not this cause pitting quicker than electrolysis?

A. In my opinion that would not cause what I recognize as pitting.

Q. If the soil contains salt and chlorid of magnesium, would not this have more action in the iron pipe than electrolysis?

A. In this case also it will be of a different character, I think, as to the degree of the action I don't know.

Q. How long had each of these pipes been in the ground before you took it up?

A. I have no certain knowledge on that.

Q. Do you know what the usual length of life of the pipe buried in the soil is, which is not acted on electrically?

A. No, sir.

Q. Have you ever made any tests as to the effect of electrolysis on iron pipe?

A. I have made—not on pipes; I have made laboratory tests as to the effects of electrolysis on iron samples, that is all.

Q. In damp soil which is slightly acid, would not there be action between any two different metals, whether they were charged with electricity or not?

A. That has been stated, I believe. In my opinion the action would be slight.

Q. What depth or under what conditions were the pipes you have referred to and brought here as exhibits at the time they were removed from their surroundings?

A. I do not quite catch that.

Q. At what depths and under what conditions were the pipes you have referred to and brought here as exhibits at the time you
5822 removed them from their surroundings?

A. They were in general three to four or sometimes five feet under the street surface, as I remember it. I do not quite understand how you mean by the conditions other than that.

Q. I think you have stated already what you found as to their proximity to the elevated pillars?

A. I see, yes sir. They were in general quite near the elevated pillars.

Q. Have you had much experience or any experience with gas mains or gas services before this observation of yours at these points from which these pipes were removed?

A. No, sir; I should not say that I had had any very especial experience with gas mains before that time.

Mr. MATHEWSON: Or gas services, Mr. Burr said.

The WITNESS: Or gas services.

Q. Have you ever made any relative tests as to the different action of pipes corroded by acid and mineral salts in relation to the relative effect and speed of destruction, compared with a pipe affected with electrolysis, and if so, under what conditions?

A. No, sir; I have never made the tests, excepting as related to electrolysis.

Q. Upon what do you base your comparisons, then?

A. Not on direct tests. I say I based the comparison on a general impression as to the extent of local galvanic action.

Q. On a general impression instead of a scientific test?

A. Well, the general impression, I suppose, has been derived from numerous other scientific tests of other people which I have encountered from time to time.

Q. You have received an impression from other people without knowing whether it was an erroneous or correct impression and acted upon that impression?

5823 & 5824

A. Well, the impression would be drawn probably from authorities, writers of treatises and that sort of thing.

Q. Well, that is a probability upon a probability.

A. It certainly is not as good as a direct test.

Q. You were not called upon to make any examination with regard to gas mains, were you, but only with regard to these services?

A. Well, sir, I made some tests on gas mains.

By Mr. MATHEWSON:

Q. Referring to these different sketches, showing the location of the different pieces of pipe which you took out, where you show the letters A, B and C, that refers to mains?

A. Yes, sir.

Q. A main at A or at B?

A. Yes, sir.

Q. And where the cross pipe ends at A or B, that means a service comes out of that main?

A. That the service was connected to that main at A or B.

Q. How old are you, Mr. Maxwell?

A. I was twenty-eight years old in May, 1906.

At 1:00 P. M. adjourned to Monday, January 21st, 1907, at 11:00 A. M.

Last Exhibits:

Complainant's Exhibit 322.
State's Exhibit 000.
City's Exhibit 236.

5825 Circuit Court of the United States, Southern District of New York.

CONSOLIDATED GAS COMPANY OF NEW YORK, Complainant,

vs.

JULIUS M. MAYER, as Attorney General of the State of New York; WILLIAM TRAVERS JEROME, as District Attorney of New York County; FREDERICK E. GUNNISON, JOHN C. DAVIES, and LUCIAN L. SHEDDEN, Constituting the New York State Commission of Gas and Electricity, and THE CITY OF NEW YORK, Defendants.

Before Arthur H. Masten, Special Master.

NEW YORK, *January* 21, 1907.

Met pursuant to adjournment.
Present: The Master, Mr. Mathewson, Mr. Burr, Mr. Kirby.

5826 ALBERT F. GANZ, a witness called on behalf of complainant, in rebuttal, being first duly sworn, testified as follows:

Direct examination by Mr. MATHEWSON:

Q. Where do you reside, Professor?
A. Hoboken, New Jersey.
Q. What position do you hold at present?
A. I am Professor of Electrical Engineering and head of the Department of Electrical Engineering in Stevens' Institute of Technology, Hoboken, New Jersey.
Q. And before that did you occupy the double chair of Physics and Electricity at Hoboken, in Stevens' Institute?
A. I was Assistant Professor of both Physics and Applied Electricity before that time.
Q. What degree do you hold in engineering?
A. The degree of mechanical engineer.
Q. Were you the electrical expert employed by the American Gas Light Association within the past few years to make an extended investigation of electrolysis and its effects throughout various parts of the United States?
A. I was so employed by the Committee on Electrolysis of the American Gas Light Association, and in conjunction with them I rendered a report on this subject of electrolysis to the American Gas Light Association.
Q. In that connection, in addition to your general knowledge on the subject of electrolysis and its appearance and effect, did you make a special study of the subject?
A. I did, most extensively. I reviewed all the reports and papers on the subject that had been written to date, including not only those in America but also the important ones in England and Germany, and in fact I collated the important data which had been
5827 published by that time and condensed it and it is in that condensed form published in our report to the Association. I

also myself translated the report made by the German Commission appointed to investigate this same subject, and a condensed translation of this is also published in this report. In addition to that I made a number of laboratory experiments for the purpose of familiarizing myself perfectly with the phenomena and verifying many of the facts which I knew, but which I wanted to be perfectly sure of.

Q. To confirm them by personal experiments?

A. Actual scientific experiments.

Q. Did your investigations by appointment of this Committee on Electrolysis of the American Gas Light Association extend generally over the country in many places, or was it confined to one?

A. The investigations of the reports which I referred to before were scattered all over this country.

Q. At page 3913 of the testimony Professor Sever refers to stray currents, and he is asked whether they do not mean a loss of energy and, therefore, a loss of coal and, therefore, a loss of dollars and cents. Have you read Professor Sever's testimony in this case?

A. I have.

Q. What is your answer to that proposition, in your judgment?

A. I would say that Prof. Sever's answer implies yes, while as a matter of fact the straying of currents from their proper return conductors affords a saving of energy and of coal, and not a continued loss of coal, and for the following reasons: Let us suppose the Manhattan Elevated, for example, was perfectly insulated so that all the return current would pass back to the power station over their own return conductors, that under those circumstances the loss of energy due to the drop in voltage was say ten per cent., and then let
5828 us assume a second case where the structure was so poorly insulated that half of the return current passed through the ground and back to the station, then the loss in energy would only be five per cent., and therefore, the straying of the currents under the circumstances cited really means a gain in energy and not a loss.

Q. At page 3915 Professor Sever states, if I understand him correctly, that the Edison neutral is grounded so as to neutralize the potentials in the system; is this the object?

A. No, sir.

Q. What is the purpose?

A. The Edison neutral in New York City has such an abundance of copper that there is substantially no potential difference set up between grounded points of the neutral, and, therefore, there is no object whatever in grounding the neutral for the purpose of returning any neutral current. The object of grounding the neutral is as a safety measure for the consumer and a safety measure to assure continuity of service. Without such grounding there would be a considerable additional hazard both to life and from a fire standpoint to the consumer, and it is for that reason that the neutral is grounded.

Q. Now, at page 3916 Mr. Sever refers to the passage of the current of the unbalanced neutrals of the New York Edison. Are there any ground currents due to that cause?

A. I should say that there were no ground currents of any substantial character due to the Edison neutral, because the copper provided for the return of this Edison neutral current is so

large that the path shunted through the ground from these grounded ends of the neutral would substantially take no current.

Q. Did you make any tests, investigations, yourself, to determine as to the situation of the New York Edison Company, as to its
5829 stray currents or dangerous currents?

A. I was detailed by the Consolidated Gas Company to make as extended an investigation of the Edison neutral as I considered necessary to establish the fact or the facts in the case, and I made such an investigation covering a period of several weeks, and I found the conditions such as I have stated.

Q. At page 3935 Prof. Sever refers to the return feeders on the Manhattan Elevated Railway structure. Are there any return feeders?

A. There are no return feeders in the sense that that term is used. The only copper that is used to connect the structure with the negative bus bar of the station are the bare copper conductors right at the substations, but there are no return feeders paralleling the structure such as are used in the subway.

Q. Prof. Sever also says that the New York, New Haven & Hartford electrical system which is being installed for local service uses an alternating current. (3931, 3938.) Now what is the fact in reference to this installation?

A. The New York, New Haven & Hartford Railroad will employ alternating current from Woodlawn out, and it will employ the direct currents used on the New York Central Railroad from Woodlawn to the Grand Central station, and therefore, so far as the effect of stray currents on the Island of Manhattan is concerned, the New York, New Haven & Hartford is just as much a menace to the piping system as the New York Central in the territory in which our pipes are located; it employs direct current exactly as the New York Central.

Q. At page 3939 of the testimony Prof. Sever refers to the amount of voltage required to produce electrolysis. What is your view on that subject?

A. The statement Prof. Sever makes is that it takes from
5830 one and one-half to two volts to electrolyze water. That is the fact, however, only if the current passes through water from a non-oxidizable anode, but it is not the fact when current passes from an oxidizable anode, as, for instance, from iron or from lead. In the latter case or cases the iron or the lead is oxidized and furnishes a source of electromotive force in itself, so we have no electromotive force counteracting the current due to that electrochemical action. We only find in practice, and this I know from personal experiment, that when a current passes from an iron pipe, say, through the ground to another iron pipe, but that it meets small counter electromotive forces which I should say amount to one-half volt, from my experience, and these are due to changes in the densities of the electrolytes produced by the current itself and are not due to the same cause which produces the counter electromotive force of one and one-half to two volts as stated in the previous answer of Dr. Sever.

Q. Dr. Sever at page 3941 states in substance that a current would

follow lead sheath rather than water and gas pipes. Do you concur in the accuracy of that statement?

A. No, sir. A current of electricity will always divide itself between all the paths open to it in the direct ratio of their respective conductivities.

Q. Is that what is known as Ohm's law, or somebody else's law?

A. It is an application of Ohm's law to divided circuits and it is exactly the same case as, for instance, if we had a cylinder containing gas under pressure and there were several leaks in that cylinder and one of the leaks were a large leak and the others small leaks, where we would have gas escaping from every one of the leaks. Just in the same way with electric current, it will divide itself between all possible paths and, therefore, if a current straying in the
5831 ground finds open to it a lead sheath and a gas pipe, it will divide itself between the two in direct proportion to the conductivities. It is a fact that the lead sheathings of cables are continuous conductors and do not have joints like gas pipes. On the other hand gas pipes are buried in the ground and make better contact with the ground than do the lead sheaths, and for that reason we may expect considerable currents on gas pipes, in spite of their joints.

Q. Is the return rail system of the subway as highly insulated to the ground as Professor Sever has described?

A. It was originally so highly insulated, that is the structure which Professor Sever has described, is substantially the structure which was installed. Since that time, however, connections have been made between the rails at different points, and the metal of the structure itself which is grounding the return system and thus making it possible for stray current to get into the pipes.

Q. That is the present situation?

A. That is the present situation.

Q. You saw and examined the other day the map showing the electrostatic condition in May, 1902, or about that time, as presented by Mr. Varley, being complainant's Exhibit 301, did you?

A. I did.

Q. And did you also see the map (Complainant's Exhibit 302) here later and presented by Mr. Varley, showing the different situation as to electrostatic conditions?

A. I did.

Q. In view of the testimony that no substantial change took place in conditions during the period except the installation of electricity on the elevated railway, what, in your judgment, would the change in the electrostatic condition be due to?

A. To the installation of electricity on the Manhattan Elevated Railway.

Q. Now, it appears that the danger lines, meaning the red
5832 lines on the map, were not only down the lines of the Manhattan Elevated according to the 1903 map, but also appeared on the rails along Broadway and in certain streets where the elevated does not run. Would that naturally follow?

A. It would.

Q. Did you also see this map showing section of the City (map,

Complainant's Exhibit 303), showing certain electrical conditions in the territory between Canal Street, Hudson River, 14th Street and Broadway?

A. I did.

Q. Indicating the direction of currents to the elevated sub-station?

A. Yes.

Q. Did you also examine the various service pipes and the two lead cables which were put in evidence during Mr. Maxwell's testimony?

A. I did.

Q. And the several charts or scales showing the electrical readings as between the services and the mains with which they were connected and the elevated pillars where they were respectively taken out?

A. I did.

Q. Meaning the charts which have been marked in evidence?

A. I understand.

Q. And did you hear the testimony that all those services were taken out within a space of about two city blocks?

A. I did.

Q. And in this very location which is covered by Complainant's Exhibit 303?

A. Yes, sir.

Q. Did you find on these wrought iron service exhibits any pittings or any other marks which in your judgment were due to electrolysis?

A. I found numerous pittings which indicate electrolysis, and taken together with the location of these pipes in the ground and with the electrical readings which were taken before they were taken out, and also taken together with the measurements of currents showing that current was flowing toward the sub-station located
5833 in this very street, taking all this evidence as a whole I consider it as a positive conclusion that the pittings were due to electrolysis; and, further than that, it is my opinion that even the excessive rusting, in a large measure at least, was due to the action of stray currents which were passing at that point, because it is well known that the effect of stray currents produces, or, rather, increases the chemical action.

Q. If you found a single instance the proof would be less positive of the strength of electrolysis, wouldn't it, or would it still be clear?

A. It would depend upon the circumstances which surrounded that single instance.

Q. But if you found the condition existing in 1902 as indicated, and then the change in 1903, and you then found this map, Exhibit 303, showing the directions of currents as they there existed, and if you then found within the space of two blocks the difference in potentials between the services taken out and the elevated pillars in that immediate section, service after service within that short distance, would not that all taken together amount, in your judgment, to an absolute demonstration that it was electrolysis?

A. It would in my judgment be an absolute demonstration.

Q. Now, will you take the first gas service which was taken out, being the 432 West Broadway example, and point out from the pipe, and illustrate by the readings on the chart, Complainant's Exhibit 305, the electrolytic action.

Mr. BURR: What is the number of that exhibit?

Mr. MATHEWSON: That must be pipe, Complainant's Exhibit 304?

A. I find in the center of the long part of this pipe one pit-
5834 ting which at the bottom goes entirely through the pipe, and also a number of other pittings, which are, however, not so sharply marked as this particular one. This kind of pitting, that is this kind of hollowing out in local parts, is characteristic of electrolytic corrosion. I would, however, not base an opinion only on the object itself, but this pipe was taken out from the locality shown in Fig. 1 on the blue print, Complainant's Exhibit 305. This service pipe was connected to the gas main marked A in this print, Complainant's Exhibit 305. This gas main was found to be positive to the elevated pillar by one to two volts. This same elevated pillar was located about four feet away from this service pipe. The measurements shown in the large map, Complainant's Exhibit 303, indicate that stray electric currents were actually flowing in the underground metal in the vicinity of this street, and all converging towords the Manhattan Elevated sub-station. A further experiment made on this same street as illustrated in blue print, Exhibit 322, shows that when a gas pipe in the street was connected by a copper wire to the elevated pillar with an ammeter in circuit a large current of 90-amperes was drawn over this wire. That clearly indicates that the potentials which existed between the pipe and elevated pillar on that street were not merely electrostatic potentials, but that they were potentials due to currents, and when the points between which these potentials were existing were connected by a conductor a current flowed. Now then we know that the ground which connected the service pipe with the elevated pillar is an electrolytic conductor and therefore with the potential difference that does exist by measurement a current must have flown, and that, taken together
5835 with the actual pitting found, is evidence that this pipe was corroded by electrolysis. The remainder of the pipe is generally rusted. It is my opinion that current was leaving the pipe to a small extent all over the pipe and aggravating the chemical actions and aggravating, therefore, the general rusting and the general deterioriation of the pipe.

Q. And you find in the case of each other service pipe here, do you not, a similar difference, not exactly the same difference, but a similar substantial difference in potential between the pipe and the elevated pillar, as shown by these different exhibit sketches?

A. I do.

Q. And when you find that there are ten or twelve such cases of similar pitting, difference of similar potential within this space of two blocks, what effect does that have on the general conclusion which you have stated from the single instance?

A. It only strengthens it. In fact, I should say it was the most positive evidence that you could possibly get, because you cannot get down in the ground and watch this destruction. The evidence necessarily is this kind of evidence.

Q. Now, will you look at those two lead pipes behind you which have been put in evidence and are exhibits 323 and 324. Lead pipes do not rust, do they, as wrought iron does?

A. Of course that depends on what you mean by rust. They are chemically destroyed, and in that sense you might say they rust.

Q. But you do not find the same rusting that you do on wrought iron so that some not well-informed person might attribute a pitting either to rust or to electrolysis. The character of a lead pipe is substantially different, isn't it?

A. Yes, sir.

Q. Now, will you look at Exhibit 323, and do you observe that that pipe shows the pittings which you have described for half its length and then is smooth the balance of its length?

A. I do.

5836 Q. Now, if it were in the soil and that action were due to the soil alone, there would not be any such difference as that, would there, in the appearance of the two parts of that section?

Mr. BURR: I will ask you to let him state himself what he finds there. Of course I do not think it makes much difference.

The WITNESS: Shall I answer the question.

Q. Yes.

A. The chemical actions which occur in the soil ordinarily produce a more uniform corrosive effect than is here shown. These particular pittings are characteristic of electrolytic action. They are always found when electrolysis takes place.

Q. And did you hear the testimony as to the location of that lead pipe, Exhibit 324, in relation to the sub-station of the elevated?

A. I did.

Q. And upon that testimony and upon the examination of the pipe, to what would you say those pittings were due, and from what source would you say that the current came that did it?

A. Undoubtedly to currents which strayed from the Manhattan Elevated return and by way of this pipe went back to the sub-station in the street and in front of which this pipe was removed.

Q. And would that action be known as electrolysis?

A. Yes.

Q. I will ask you, in view of the exhibits that have been presented and the electrostatic condition which has been shown and the number of the instances which have been produced within a small area, the pittings on these wrought iron pipes and on the lead pipes could have been produced, so far as the testimony shows, by any other agency except electrolysis?

A. None in my opinion.

5837 Q. And electrolysis from the elevated railway currents?

A. That is my opinion.

Q. Now, counsel for the defendants in the examination of Mr. Maxwell extracted considerable entertainment from the suggestion

that if you had a pipe, a gas main, laying some distance from an elevated pillar, that the current must come from that pipe at the point nearest the pillar and if it did do so or if it did not do so, it would not come from points on the other side of the main, and that if it was assumed to come from points on the other side of the main or on the top of the main, that would be ridiculous. What is the fact about that?

A. The fact is it might leave the pipe in any number of places around its circumference, depending entirely on the conductivity of the soil in various places surrounding the pipe. For instance, let us assume that the pavement above the pipe had been cracked——

Mr BURR: What is that paper?

Q. Just a moment. I show you a sketch. You can use this, and then I will offer it perhaps. Assume that the circle surrounded by the points A, B and C is a main, and the points A, B and C are on that main and that the street surface is where I have indicated by the line above, and that the elevated pillar and foundations are in the upright positions which I have indicated. Now, will you express yourself on the subject regarding which I just questioned you?

A. By the law of divided circuits, and assuming that the pipe makes uniform contact with the soil and also that the soil is of uniform conductivity, current will leave the pipe at every point of its circumference and go to the elevated pillar. The strongest current under those circumstances would of course be from a point
5838 nearest to the elevated structure. However, with the soil in the street we do not have that uniform condition and it may well be that the path from the point C, for instance, to the elevated pillar may, due to some accidental reason, be a better path than the path from B directly opposite to the pillar. Both paths may exist and all three in fact may exist, and more may exist, and the current may leave the pipe in just so many places and produce just so many pits.

Q. Assuming, of course, that the pipe was positive to the elevated pillar, as has been testified was the case with these exhibits which have been presented?

A. That of course is my asumption.

Q. Let me show you Complainant's Exhibit 320-A. There appears to be a hole in this pipe on the side lying towards the elevated railway, according to the testimony?

A. Yes.

Q. And on the opposite side of the pipe there seem to be some irregularities?

A. Yes, it is all over here.

Q. Would it be an unusual or uncommon thing for a pipe lying in soil like that in New York City to have the current start at point A on this diagram and arch over the pipe on the opposite side?

A. Not at all.

Q. Or at point C, and arch under the pipe?

A. Yes.

Q. It would not be an extraordinary thing but a very common thing?

A. Yes.

Q. And, therefore, if there are also pittings on the back of this pipe, which are also due to electrolysis, is there anything inconsistent in the science or the art in that?

A. Not at all.

Mr. MATHEWSON: I will offer this in evidence, it may be placed on the record for purposes of illustration.

5839 Paper received in evidence and marked Complainant's Exhibit 325.

Q. Testimony was given, Professor Ganz, by Professor Bemis, and some of the witnesses for the defendants, in reference to an expected very great increase in the sales of gas, which I assume would be affected by the cheapness or efficiency of other illuminating apparatus. Can you tell me whether there are improvements now in progress, or virtually attained in connection with incandescent lamps that would increase such efficiency and cheapness of that illuminant?

Mr. KIRBY: I object to that; it is opening up a field into which we could go until next summer. It is not proper rebuttal.

Mr. MATHEWSON: I have only two or three questions on that line.

Mr. BURR: I object to it as not proper rebuttal.

Mr. MATHEWSON: I will say that I merely desire to show by the witness that there are two or three lamps of very much greater efficiency——

Mr. KIRBY: And there are several gas lamps in the same way, and if you should bring in this we would have to bring in others, and where would we end?

Mr. MATHEWSON: If the Master is in doubt about it, I shall not press it. It seems pertinent to me.

The MASTER: At first blush to me it does not seem to be rebuttal evidence. I do not recall exactly what Professor Bemis testified to, but it may be you are quite right, and that there is some specific fact to which he testified that you may rebut.

5840 Mr. BURR: I assume it is the testimony of Dr. Marks and Professor Bemis, that the reduction in the price of gas invariably means increased consumption.

Mr. MATHEWSON: Yes, a very large increase, they have stated, and my purpose was to show that even if their assumption be correct as to the general theory, that there are discoveries which have been just made and devices made in the electric lighting business which would have a tendency to cut down the output of gas by the use of this cheaper electric lighting. That is exactly the point, but if the Master has doubt about it, I shall not press the question.

The MASTER: I am inclined to think that objection is good.

Mr. MATHEWSON: Very good, then I shall not press the question.

Q. Now, I will ask you whether you examined each one of these exhibits of wrought iron pipe offered during Mr. Maxwell's testimony?

A. I have.

Q. In addition to those which you have specified on the table this morning?

A. I have examined each one of them.

Q. And whether you found on each one of them pittings in your judgment due to electrolysis by currents from the elevated railroad?

A. The pittings and corroded condition of the pipes taken together with their location and the electrical readings taken from them indicated to my mind that the corrosion was at least to a large extent due to electrolysis derived from stray currents from the Manhattan Elevated Railroad.

Q. Generally, Professor, while the situation of electrolysis in New York until very recently has been more favorable than
5841 in many cities, I assume, what is your view as to the future danger of electrolysis by reason of the evidences which you have seen here as affecting the pipes of the Consolidated Gas Company?

Mr. BURR: I object to that as being too remote and speculative.

The MASTER: I will allow it.

Mr. BURR: Exception.

A. My opinion is that stray currents are now flowing from the elevated to the gas pipes, and off from them and that in the future they will continue to flow, and that some destruction is going on; whether that destruction is serious or not I do not know. You probably will not find out until the pipes are dug up, as they were in this case, and examined.

Q. What would be the tendency due to these increased currents and increased electrical construction to which reference has been made as to the New York, New Haven & Hartford and the New York Central and the subways?

A. They would increase the hazard from stray currents considerably.

Q. And would it be your view or not that damage is to be expected in the future for which provision must be made to a greater or less extent?

A. I do not think the damage can be prevented. I believe there is sure to be continual damage in the future.

Mr. MATHEWSON: That is all.

Cross-examination by Mr. KIRBY:

Q. I presume that you agree with Mr. Lieb that the Edison Company has been making and is to-day making efforts on
5842 their part to prevent stray currents from their circuits?

A. It is my opinion that the Edison Company has, right from the beginning, had such an abundance of neutral copper in the ground that there never was any danger from stray currents, and I do not think that their improvements are made—or rather their additions of a neutral feeder are made for the purpose of preventing stray currents; they are simply for the purpose of making their system as effective as possible.

Q. And as a corollary to making their system as effective as possible, comes the fact that the danger from stray currents is minimized?

A. It does.

Q. Is it also not a fact that the elevated railway structure or those who control the elevated system are making efforts to-day to prevent stray currents from their structure?

A. They are making efforts inasmuch as they are substituting for the uninsulated connecting return cables at the sub-stations, insulated cables.

Q. And will this, in your opinion, improve the situation?

A. It will improve it.

Q. So that the condition in the future would be better than it is to-day?

A. The condition of the Manhattan elevated with the improvements indicated will be better in the future than it is to-day.

Q. And have been in the past?

A. And have been in the past; excepting, perhaps, in so far that the Manhattan may increase its capacity and therefore may be using larger currents, and also excepting this important point, that the Manhattan Elevated depends for the return of its current largely on the bonding of its structure and bonding of its rails; and when there bonds are new they make good contact as a rule, but as the bonds become old they are likely to deteriorate in their contact, and while they are now substituting insulated cables for the
5843 uninsulated ones at the substations, the bonding may, due to vibration of the structure and due to natural causes, become less efficient and therefore the structure itself and the rails themselves may become less efficient return conductors, and for that reason we might expect a larger increase in the stray currents.

Q. But this increase of current upon the structure itself, and decreased conductivity of the structure due to faulty bonding, is purely problematical, is it not?

A. Not at all problematical, in view of the fact that a large part at least of the electrolytic damage from single trolley railroads has in the past been due to poor bonding which was good at first and became defective through use. That has always been the experience.

Q. Take the increased use of current, have you any definite knowledge or information as to whether more current will be used in the future than is being used to-day?

A. No.

Q. Take the question of bonding, have you any information or knowledge as to whether or not those in control of the elevated railway system will not use their efforts to keep their bonding in good condition and repair?

A. I have no doubt they will use their best efforts, but even their best efforts will not enable them to locate defective bonds; it is a most difficult thing to locate, and there are so many in the elevated structure, it is, in my opinion, impossible to keep them all in effective condition.

Q. But the general conductivity of the whole structure can be kept up, can it not?

A. That is problematical; I don't know. It is a riveted structure with bonds, and whether or not the conductivity can be kept up or not is a question only time can decide. It is certainly nothing like

as good a return as, for instance, we have in the subways,
5844 where a continuous copper return feeder is used—you could not compare the two.

Q. Then there is but little danger from the subway?

A. There is very much less danger from the subway than from the Manhattan elevated. How much danger there is from the subway nobody knows.

Q. That is also problematical?

A. That is in a sense problematical, yes.

Mr. MATHEWSON: Do you mean there would be less danger in the subway return than there would be in the elevated after they instal this new bonding system, or as it now is?

Mr. KIRBY: I will ask him.

Q. The subway system is a continuous cable return, is it not?

A. In the subway system they have continuous cable returns attached to various points in the rail system and conducting the current back from those points. Whether or not all the current will return by those paths depends upon the potential differences which exist between the points in the subway which are grounded in the way I have described before. If those points can be kept at the same potential or substantially so, within one volt, I put that as the safe limit, if it can be kept within that limit, in my opinion there will be no currents which could be considered dangerous.

Q. And that is the intention and that will be the effort, will it not?

A. I don't know what their intention is.

Q. It is, in your opinion, a possible engineering result, to keep such points within the range of potentiality of which you speak, is it not?

A. It is an engineering possibility, but I do not know of a single case in this country where it is accomplished.

Q. It is accomplished in the Edison circuit, is it not?

5845 A. That is not a railway circuit. You must remember that in a railway circuit, all the current that is used has to return by the grounded conductor, whereas in the Edison system a very small fraction of all the current that is used is returned by the neutral grounded conducto[illegible]nd the mass of copper there employed is such that there will be n[illegible] appreciable potential difference to do any damage.

Q. But in the subway system the return is by the rails and copper return cable, is it not?

A. Yes, but that does not say that all the current is going back by that path. For instance, suppose all the return cables were of the same cross section and one was a short cable and the other was a long cable, there would be still a potential difference between the ends of those cables, and if those ends should be grounded to the structure—whether they are or not at those points I don't know—but if they should be, there would be a stray current due to that cause.

Q. The reason, I presume, for grounding of the currents at certain points to the structure itself is to take advantage of the conductivity of the structure, is it not?

A. Not at all. The reason is to make it safe for workmen to work in the subway and prevent an electrostatic charge from making the rails at a higher potential than the ground. It is not at all for the purpose of making the structure the return. It was found necessary simply as a precautionary measure.

Q. Will you take up, if you will, the piece of pipe, I think it is Exhibit 324. Looking at that pipe I see it appears to be pitted along practically its whole length. Do I understand you to say that is all due to electrolytic action?

A. I did not say that. I said that the fact that the pipe was carrying current in the neighborhood of the Manhattan substa-
5846 tion in Spring Street, and that the pipe was positive to the elevated pillar in that neighborhood, and the fact that these pittings—that pittings do occur which are of an electrolytic appearance—taking all these things together, I say it is conclusive evidence that at least a part of it is due to electrolysis.

Q. What would the other part be due to on that lead sheathed cable?

A. The effect of electric current when it passes from a metal into an electrolyte is to produce an acid condition and set up chemical action. Some of this may be due to secondary chemical action from that cause; I do not know.

Q. Have you made any analysis of the earth at that point?

A. I have not.

Q. Have you been informed, or do you know, whether there is any acidity at that point?

A. If there was no acidity there originally, the current would take good care to make it acid.

Q. You do not know, that is a conclusion?

A. I know that an electric current in the presence of salts, which are always found in the ground, such as chlorides, nitrates and sulphates, and the like, always produces an acid condition at the point where the current leaves the metal.

Q. Do you know whether or not there was an acid condition at that point where this pipe was taken from, and if so, how do you know it?

A. Not from tests, no.

Q. Then you are not prepared to say whether that was so or not?

A. I am prepared to state that if currents as is shown left the pipes at these points and went into the soil, the soil containing the usual salts, that acids were formed at these points.

Q. You don't know whether or not it contained the usual salts?

A. It always does.

Q. You are not prepared to say the soil did at this point, are you?

A. No.

5847 Q. You are not prepared to swear that it contained other than the usual salts, are you? You do not know anything about what the chemical makeup of the soil was at that point?

A. I know nothing about the chemical makeup of the soil at that point.

Q. Am I to understand you that the current was leaving the entire length of that cable?

A. Yes.

Q. And that from one point to the end it has created a certain broken condition of the surface? Now, point out if you will, what is due to electrolytic action if you can, and what is due to other action?

A. I cannot point it out. Nobody can.

Q. Is there any point there at which you are more positive than the rest that it is due to electrolytic action?

A. Yes, we find from experience that when the corrosion is concentrated at local points producing pits or deep depressions, that that is the result of electrolysis, whereas the ordinary chemical actions produce a more uniform destruction. Further than that, if acids were present which would chemically act on that, they would all the more act electrochemically, that is, the current would act worse in the presence of acids and make the conditions tremendously worse than they would without.

Q. And where we have this acidity in the earth or salts, am I to understand that there may be electrolytic action without any flow of current to or from that point from an outside source?

A. Why, no, I did not say that. I said that from the evidence presented, the current was leaving this pipe.

Q. Yes, but I am not speaking of the evidence presented; I am speaking of this little electrical action which you have spoken of which might be produced when there was acid or salts present. I am asking if that is a condition which might obtain, and if electrolytic action might take place without there being any current
5848 to start up that action, such current coming from an outside source.

A. I do not understand your question.

Q. We will assume we have this condition, which you have made reference to, where we have an acid earth.

A. Yes.

Q. Suppose we had two metals in that earth, could there be electrolytic action set up between those two, that is, could a battery be made?

A. Oh, yes, that is possible if the conditions were just right. If you had two metals which were so located with reference to each other in this acid earth as to produce galvanic action, that could certainly be produced, yes.

Q. What was this pipe lying next to, do you know?

A. Well, it was drawn out of a subway duct, which, as I remember it, was iron; it may possibly have been tile. I do not recollect at the moment.

Q. What would be between this lead-sheathed pipe and this iron or tile duct?

A. Probably some water.

Q. Well, then, do you know whether it was water or not?

A. I do not.

Q. Is water supposed to be present there?

A. It is not supposed to be, but it gets in.

Q. Suppose it was not there, could such corrosion take place?

A. No.

Q. Then would you say that is due to the decomposition of water and electrolytic action set up by the water that this pitting is present?

A. I did not say that. It is not the decomposition of water that makes it, it is the salts held in solution by the water to which is due the damage. I should say that certainly there was a solution of some kind, something wet between this and the duct, in which it was lying, without a doubt.

Q. It could not be produced in any other way, you think?

A. If the ducts were perfectly dry and this were lying in perfect contact I do not believe it could be produced, no.

5849 Q. The duct is intended to be dry, is it not?

A. It is intended to be dry, yes.

Q. Have you examined any service pipes or wrought iron pipes taken out of the city streets besides those which have been put in as exhibits?

A. I do not recall whether I have examined any taken out of the streets in New York. I have examined them in other places.

Q. If you have not examined them taken out of the streets of New York or out of the neighborhood from which these pipes came, how are you prepared to state that the rust on these pipes has been largely increased by electrolytic action? What comparison have you to make so as to draw your conclusion?

A. I have the facts given in the testimony in regard to the electrical readings; that is, that these pipes were all positive to the elevated pillar; further than that, that the gas pipe, or rather the gas main, was actually carrying current leading up to this district where these pipes were removed. On one of these pipes (complainant's Exhibit 307) a flow of current was actually measured on the service pipe, Exhibit No. 7. The map, Exhibit 303, shows that on underground conductors generally in this neighborhood currents were flowing generally in the direction of the Manhattan sub-station. And all these things, taken together and taken together with the pittings and the corrosion that we observe, are as conclusive evidence as can be possibly obtained.

Q. That there is electrolytic action going on?

A. That there is electrolytic action going on.

Q. Yes, I quite understand your point in that regard, but that is not at all responsive to the question which I asked you.

A. I do not understand your question.

Q. My question is this, you have stated that rusting of

5850 these pipes is due, in your opinion, or has been increased, in your opinion, by electrolytic action?

A. Yes.

Q. Now, you are not familiar with the soil there. You don't know whether it is an acid soil or what salts may be contained therein. You have not seen the pipes taken out of the ground from that point or even in the city. You have not observed rust thereon, to what extent it may be or has been, and still you give a conclusion as stated.

Now, I want to know upon what comparison you base your conclusion?

A. From the fact that any soil, so long as it is damp or wet, is an electrolytic conductor, and these service pipes were lying within a few feet of an elevated pillar and were positive to that pillar, before the ground was removed there was unquestionably a flow of current through that ground. There could not be anything else. Of course, when the ground was removed the flow of current was interrupted because the circuit through which the current was flowing was interrupted. It was therefore manifestly impossible to measure the current flowing on these pipes, for the reason the current was interrupted by taking the pipes out of the ground. The only reason we have is that there was damp ground between the two and a potential difference in the manner indicated.

Q. You never made any comparison of pipes lying in this ground which were not subjected to electrolytic action and pipes which had been, in your opinion?

A. In this ground, no.

Q. Or in any other ground in the city?

A. Not in this city, no.

Q. You have spoken of currents flowing along the pipes. How do you know it was flowing along the pipes?

A. They were measured and are shown on some of these exhibits.

Q. Do you mean to say if you take and put an ammeter
5851 between a pipe and an elevated pillar and get a reading across, that there is current flowing on the pipe or to the elevated pillar?

A. No, sir, I did not say that.

Q. How do you come to your conclusion?

A. My conclusion is based not on that exhibit, but other exhibits.

Q. What exhibit?

A. I will show you.

Mr. MATHEWSON: Current flowing along the pipe, he said.

Mr. KIRBY: Well either one.

The WITNESS: Take, for instance, this same exhibit I had last (indicating). There is an actual current of .95 amperes flowing along that pipe. It was found by measuring the drop along the pipe, along a measured length of the pipe.

Q. Now, taking this Exhibit 307, you say it was found by measuring the drop along the pipe?

A. Yes.

Q. Will you kindly point out the point where that reading was taken and what it is and what other elements enter into your conclusion that there was current flowing along the pipe?

A. The electrical readings were taken by Mr. Maxwell, and he has testified that these electrical readings were taken by himself and were correct.

Q. That is all right. Now, what were the readings and where were they taken?

A. They were taken on Exhibit 307 on this particular pipe, as

shown. Mr. Maxwell will have to answer that question as to exactly what point. It is quite immaterial, so far as this case is concerned.

Q. That is not it. I want you to do so, but you seem unable to point out where the readings were taken, what particular points and what they were and upon what elements you based your con-
5852 clusion that there was currents flowing in that pipe?

A. I based it upon this evidence here, Complainant's Exbitit 307. That states specifically on that exhibit the current flowing equals .95 amperes from the main towards the house, and this has been put in evidence by Mr. Maxwell, and he has testified that these readings are correct, and he is competent to make these measurements, and, therefore, I have a right to consider this is the current.

Q. You have just stated that this exhibit, coupled with Mr. Maxwell's testimony, is to the effect that the current flowing from the main towards the house is .95 amperes?

A. Yes.

Q. If I remember his testimony, it was to the effect that he put an ammeter across from the pipes to the elevated railroad pillar, or whatever it might happen to be?

A. No, that is a mistake.

Mr. MATHEWSON: That was another thing, that is where he got the difference in potential there.

Mr. KIRBY: No, you do not read difference of potential with an ammeter.

Mr. MATHEWSON: Another place he testified about that.

Q. Then you cannot tell me from this exhibit and from the testimony which you have listened to how Mr. Maxwell got his result, which is set down there, can you?

A. I am simply taking these exhibits for what they are.

Q. But you cannot tell me and answer my question from this exhibit and from Mr. Maxwell's testimony which you were here and listened to, how he got his conclusion that there was .95 amperes along that pipe?

A. I cannot answer it until I read over his testimony again. I do not remember whether he has testified in detail how he
5853 made this particular measurement, but I know he is perfectly competent to make such a measurement, and as long as he states that the current is .95 amperes, I take it he made it in the proper and correct way.

Mr. MATHEWSON: He stated those were the correct electrical readings.

Q. Now, I show you Complainant's Exhibit 322, and call your attention to the statement thereon, as follows: Pipe connected to L pillar through an ammeter, pipe positive 90 amperes, 2.2 volts; pipe negative 10 amperes, .8 volts. Do you mean to say that reading with an ammeter in that way means a flow of current from the pipe to the elevated railroad pillar?

A. No.

Q. It simply means that when an ammeter which carries a con-

ducting wire from the pipe to the ammeter which in itself is a conductor, and then to the pillar, in other words, when an ammeter is interposed between the pipe and pillar, there is a flow of amperes indicated.

A. It means more than that.

Q. It means that and more?

A. Yes.

Q. But it means that?

A. Yes, and I would like to explain what it means more, if I may.

Q. I think I understand what it means more. I have no objection to your explaining it, if you want to.

A. I would like to explain. If there was simply a high resistence connection between the gas pipes and elevated structure at some point, we might get a potential reading, but when we put an ammeter across we would not get any considerable current. The fact that we would get a considerable current in an ammeter connected between the pipe and elevated pillar indicates that there is a contact somewhere else between that pipe and the elevated pillar, and, therefore, it indicates that we have not merely an electrostatic potential,
5854 but we have a condition which is most favorable for the flow of current.

Q. As a matter of fact, there are risers which go up from most of these gas mains, to most of the elevated stations onto the structure itself, are they not?

A. Yes.

Q. That would be an excellent contact, would it not?

A. Yes.

Q. Far better than the flow of current through the earth?

A. That is comparative. I could not answer that question.

Q. Most things are by comparison. The result of all your testimony is by comparison and deduction?

A. Yes, in general, I should say very much better.

Q. We have looked at this piece of lead pipe and the pittings in it. Do you think that if, instead of the lead pipe occupying the position which this one did, Exhibit 324, it had been wrought iron pipe that the evidences of electrolytic action would have been practically the same?

A. Not quite, because the rate of corrosion of lead is about three times that of wrought iron; that is to say, a given time and a given current will remove three times as much lead as it will iron.

Q. But is the evidence, that is, the marking in one characteristic of that in the other, or do they differ, and if so, how do they differ?

A. I do not believe there is a substantial difference.

Q. You do not believe there is?

A. I do not believe there is a substantial difference.

Q. So that if a wrought iron pipe was subjected to an electrolytic action of the same intensity as a lead pipe or sheath covering of a cable and the time for the wrought iron pipe was three times that for the lead, you would expect to see practically the same result?

A. Under ordinary conditions, yes.

Q. Is there any method by which, after a lead cable or
5855 wrought iron pipe has been removed from electrolytic corrosion, you can tell whether the corrosion has been recent or a long time removed?

A. Not that I know of.

Q. After a wrought iron pipe has been subjected to electrolytic action in the soil, I take it that it immediately becomes rusted at that point, does it not?

—. Well, the electrolytic corrosion is a form of rusting; it is a very broad term, rusting.

Q. If you subject, for instance, either lead or say, wrought iron particularly to electrolytic action, such action as would be damaging, which I take it is the current flowing away from the pipe, there is a deposit being taken from the pipe to something else instead of a deposit being made on the pipe, and you broke your current and looked at the pipe you would find it brightened where the electrolytic action was taking place, would you not?

A. Do you mean at a point where the current left the pipe?

Q. Yes.

A. Find it brightened?

Q. Yes, the pipe would look clean and new?

A. No.

Q. How would it look?

A. Rusty.

Q. What would rust it?

A. The acids produced by electrolysis.

Q. The acids would immediately attack it and rust it?

A. Yes.

Q. While the electrolytic action was going on, however, there would be no rust present, would there?

A. Rust is a broad term, and includes all erosion.

Q. The place would look bright and clean?

A. That is a hypothetical question, Mr. Kirby, which I cannot positively answer. I do not believe anybody knows.

Q. Then we will go on a little further, and our electrolytic action is either going on or has stopped and, as you state, corrosion
5856 takes place and the point becomes rusted. You would dig your pipe up and it looks also rusty. Suppose that pipe had been subjected to electrolytic action ten years ago and it had stopped, and you took it up today, could you tell the difference in appearance between that pipe and one which you took up yesterday?

A. No, sir.

Q. And in which the electrolytic action had been present the day before yesterday?

A. No, sir.

Q. Now, coming to this pipe here, Complainant's Exhibit 320-A, about which we have had some testimony as to current leaving from the various sides thereof, I want to know if you agree with Mr. Maxwell that these various points are due to electrolytic action? Here is a hole right through it, I think it is the only hole through the pipe. You think that is due to electrolytic corrosion, don't you?

A. Looking at the pipe just by itself, and only showing what is shown there, I would not be willing to form any conclusion whatever as to the cause of that corrosion; but only when we consider the relation of the pipe to its position in the ground and the electrical reading taken thereof, all that taken together is evidence that it is electrolytic corrosion, but not the appearance of the pipe itself; but it is a fact which we get from general experience that electrolytic corrosion produces marked pittings, which are rather different in appearance from the ordinary corrosion that takes place in the ground, and such pittings I have examined in many instances, and they are characteristic. But I would not be willing to swear that a given pitting taken by itself and without any other evidence was a sufficient proof of electrolysis.

Q. In other words, it might be due to ordinary chemical action, such as rusting, or if there were more acid in the earth, due to more energetic chemical action?

A. I should say I did not know.

5857 Q. So you are not prepared then to take up any one of these pipes, except possibly this lead cable, and swear that examining them by themselves you would say that the pitting and rusting and other evidence of deterioration thereon was due to electrolytic corrosion, are you?

A. I would say that these exhibit pipes in many instances show the pittings which are characteristic, strongly characteristic, of electrolysis, but I would not be willing to swear that from the appearance of the pipe itself we could substantially say it was electrolysis.

Q. Let us take complainant's Exhibit 328, and point out to me, if you will, the pittings which are to you strongly characteristic of electrolytic action. That is what I want to see.

A. Well, this pitting in which there is a hole, this pitting over here, around which there is a long blotch (indicating).

Q. Let us mark them. Now, the one I have marked with a ring around it in lead pencil?

A. Yes.

Q. Now, how about this on this side (indicating)?

A. I don't know anything about them, the evidence is not good enough there to make anything positive at all.

Q. How about this one?

A. I don't know.

Q. Or this one?

A. I don't know.

Q. Well, we have two on which you feel quite positive?

A. No, I am not so positive about either of them as evidence in itself.

Q. But they are strongly characteristic of electrolysis?

A. They are strongly characteristic of electrolysis, but not so strong as some of the other exhibits.

Q. Let us take some of the other exhibits. If you will hand me that short piece of pipe over which we had some somersaults flying around Saturday. Take this pipe, 320-B, what strongly

5858 characteristic evidence of the electrolytic corrosion do you see on that?

A. I do not think there is any very strong evidence of what I would say, in itself and taken by itself, was evidence of electrolytic corrosion, no.

Q. Now, if I may have Mr. Mathewson's diagram, Exhibit 325. Turning for a moment to that exhibit, which has some three points marked thereon, am I to understand from your testimony that current from the point A would by preference take the path of the earth to the elevated pillar, rather than flowing through the iron pipe itself and leaving by point B?

A. I did not say so. But let us suppose, for instance, that there is a rock between the pipe and the pillar, in between here (indicating), then certainly the path from A over to the pillar, or from C over to the pillar, is better than B to the pillar.

Q. But point B being the point facing the pillar has been testified to by Mr. Maxwell as being the point where the electrolytic pitting took place.

A. That would be, under ordinary conditions, the place where the worst pitting would take place. It does not follow that all the pitting would take place there. It is my opinion that electrolytic corrosion and pitting go together, you cannot separate them. And it is my strong opinion that this corrosion from electrolysis is taking place all over there. The reason we get pitting, as that is understood today, is that at some point in the pipe or other there is a better conduction to the ground, and therefore a strongly localized current, and it is for that reason that the chemical action at that point is concentrated and aggravated and therefore produces a stronger and deeper pit than it does more uniformly.

Q. Well, let us look at Exhibit 324 again. Do you find any evidence of that current leaving, except from one side?

A. No, sir.

Q. Would you agree with Mr. Maxwell that one of the
5859 strong evidences of electrolytic corrosion in the pipe would be the pittings along the straight line running parallel with the pipe, or rather not twisted around the pipe, but running down its length?

A. I would expect to find the greatest electrolytic destruction at the point nearest to the pillar, provided, of course, that the ground around here was uniform. There may be a wall between however and a dozen reasons why the path is better from some other spot.

Q. And the earth is generally other than uniform, there are stones and pebbles and things like that in it?

A. Yes.

Q. So we could expect to see current come from any and all parts?

A. Yes.

Q. And that being so, the pittings would not be in a regular straight line, but from everywhere?

A. Not as a rule, if they were in the ground, no. But this lead pipe was in a different condition, it was not in the ground, but was resting in a duct, and therefore was making contact at the bottom and not along other points.

By Mr. MATHEWSON:

Q. And the lines are where it was making a contact with the duct?
A. Yes. I have explained that already.

By Mr. KIRBY:

Q. In this pipe shown in Exhibit 325 the distance between point A and the pillar and point B and the pillar, as far as the relative conductivity of those two paths is concerned, is infinitesimal, is it not? Take these pipes here, they are one inch pipe and two-inch pipe——

A. Yes, but the fact is this——

Q. Well, that is so, is it not, it is infinitesimal, if you
5860 measure the conductivity of the earth between A and the elevated pillar and between B and the elevated pillar?

A. Yes, but that is not what counts. It is the surface contact with the ground and not the conductivity of the earth itself.

Q. So that if you had your good surface contact at A with the pillar you might have almost all your current leaving at that point as against B where the surface contact was poor?

A. Under that assumption yes, although I ordinarily would not expect it so, for this reason, too, that the effect of the current in the electrolization of the iron, increases the conducting path, so that once the action is started it is aggravated at that point and continues by preference at that point rather than at any others.

Q. But if we had this pipe buried in uniform earth and each point of the surface insured equal contact with the earth and a difference of potential between that pipe and the elevated pillar, we would expect to find the current, if there was a flow of current, leading from the point B and going to the elevated pillar, would we not?

A. The current would leave from all points, but the largest amount of the current would flow from the point B, or in the immediate vicinity of that point, but some current would flow from all points.

Q. The larger amount would mean almost the entire amount, would it not?

A. Probably, yes.

Q. So then, to have an appreciable current flowing from any other point you would have to have a poor contact of the pipe with the earth at some point or a non-conductor like a pebble, or something of that kind resting against the pipe, or some unusual condition?

A. Yes.

Q. When this pipe was taken up I do not suppose you were present?

A. No.

5861 Q. You are not aware of the nature of the ground, whether any gas pipes, or any other things were in the soil at that point?

A. No.

Q. If there had been an acid condition of the moisture, which

you state must have been present in that tube in which the lead pipe was drawn, I suppose that might have produced that result?

A. It would facilitate electrochemical action even more than chemical.

Q. If there was no current?

A. It might.

Q. It might, might it not?

A. Possibly.

Q. You have spoken of the law of divided currents. The law of divided currents is what Mr. Mathewson is pleased to speak of an Ohm's law, is it not?

A. It is an application of Ohm's law.

Q. By that you mean that no matter how bad a conductor anything may be, and how low a potential there may be, that nevertheless there is a part of the current which goes through that conductor as compared with some other?

A. Yes.

Q. When we come to the Edison circuit, we find that this neutral is such a good conductor that notwithstanding the fact that the earth, which is a poorer conductor, is also present as a return, that the current almost in its entire amount returns by the neutral rather than by the earth?

A. That is so.

Q. So that while the law of divided current applies, it practically means that where we have the earth, a poor conductor under circumstances such as I have suggested, it carries a current which can be disregarded?

A. Not exactly, Mr. Kirby. We have another element to consider in this connection, and that is the counter-electromotive force, which is produced when a current enters a pipe and leaves a pipe. There is some counter-electromotive force.

Q. We have it when it enters or leaves a cable in the same way, don't we?

A. What do you mean by cable?

5862 Q. I mean copper.

A. Oh, no, it is due to electrolysis, and that prevents any voltage which is much below, say, half a volt, of producing any current which would be at all measurable from flowing on to and off the pipe.

Q. So, as a matter of fact, it would be easier for a current to stray from a copper cable than it would to stray from a lead or iron pipe?

A. No, not at all.

Q. They would be both the same?

A. Yes.

Q. That is what I tried to bring out and you seemed to disagree with it?

A. No, I don't believe you understand me yet.

Q. Yes, I think I do.

A. I hope you do.

Q. This balancing of the Edison circuit is one which every effort is made to bring about, is it not?

A. Yes.

Q. And is it done mechanically?
A. Mechanically?
Q. Yes.
A. You would have to explain what you mean by that.
Q. How is the circuit kept within balance?
A. All current due to the installation of lamps and other devices, is as nearly as is possible balanced between positive and neutral and negative and neutral.
Q. And as long as that condition prevails there is no danger of flow from one neutral to another, the potentiality of the two is practically the same?
A. Yes.
Q. Now, you have stated that this neutral is grounded?
A. It is.
Q. Grounded to take care of unusual conditions which may exist?
A. It is.
Q. I suppose the throwing out of a certain number of large office buildings suddenly by the breaking of a cable or some unfor-seen accident would throw the system out of balance for the time being?
5863 A. No, sir, because every office building in the city that I know of is wired on the three-wire plan, and it would not disturb the balance of the system in the least.
Q. Well, then, what are these hazards of which you spoke?
A. I will give you some instances. Suppose this system was not grounded and a man in his residence had a lamp cord and that cord on one side came in contact with the ground; a ground would be established on that side of the circuit and nothing particular would happen. Now, suppose that the same man or some other man in some other house came in contact with the other side of the circuit, he would receive a shock of 240 volts, and if on the other side of the circuit an accidental ground connection were made, there would be a serious short circuit due to the 240 volts. On the other hand, if the Edison neutral is grounded as thoroughly as it is, as soon as the first man gets a ground by one of his lampcords coming in contact with the ground, and the fuse automatically breaks open that circuit and the dangerous position is immediately thrown off the circuit automatically, and it further makes it impossible for anyone standing on the ground and coming in contact with either wire, of receiving a voltage greater than 120, whereas in the other case he would receive 240. You make a service continuous and safe by grounding of the Edison neutral wire.
Q. Have they not somewhat the same reasons as the subway as to being grounded?
A. Somewhat the same reasons, yes.
Q. Now, when this circuit is thrown out of balance there is a difference of potential set up between the neutral wires, is there not?
A. Of course, in order that the current may flow through the neutral wires there must be a difference of potential to make
5864 it flow, but that difference of potential would in all cases be a fraction of a volt.

Q. And according to the law of divided circuits there would be a current flowing?

A. Not an appreciable current through the ground.

Q. But a current?

A. Because if the circuit which includes the ground pipes and with which pipes again we have to deal, this counter motive force would be there and therefore the current electro would be of the character of ordinary earth currents.

Q. You have never made any measurements in the city or had any measurements made to ascertain whether there was any difference in potential between the grounded neutrals of the Edison system, have you?

A. I have made over one hundred measurements myself.

Q. Have you found any such difference of potential?

A. The average of the maximum potential that I found was about .4 of a volt and those were under the worst conditions possible.

Q. How high did you find any of them going?

A. I cannot say how high I found any potential difference due purely to the Edison neutral system, because the grounded ends of the neutrals partake of the potential of the ground due to all causes, and when I had, for instance, one terminal near the elevated structure at one side and the other terminal near the elevated structure somewhat off at a distance I found the highest potential difference of 1.3 volts momentarily. I traced in one or two cases however railroad currents.

Q. I suppose you are willing to agree with Mr. Lieb that it is possible to ascertain whether or not these currents do come from the Edison system?

A. Your question is too broad to answer.

Q. Assume that you found a difference of potental between say a gas main and a street railroad rail or any other point in the
5865 city's streets, is it possible for you to ascertain whether or not that difference of potential comes from the Edison system?

A. I think so, yes.

Q. The charts 301 and 302 do not show any differences of potential as late as I may say these pipes were removed, do they?

A. Well, the last chart was taken in 1903, and these samples were removed in the past year.

Q. So I understood. You have made reference in your direct examination to the answer of Sever (Record, p. 3941). I will ask you to listen to me read the question and the answer, and ask you to state the reasons which led to the conclusion which you have already given.

"Q. And it is your testimony that if there be stray currents in the ground, such currents would follow such continuous paths rather than water pipes and gas mains which afforded a more broken path and a path of higher resistance? A. Yes."

Q. Now, do I understand from your testimony that if there were interposed for the transferring of electric current a continuous lead sheath of a cable, whether for power or telegraph or telephone work, and a pipe joined every few feet that the current would by preference

take the broken path of the pipe rather than the continuous path of the lead-covered cable?

A. The current would divide itelf in proportion to the conductivities in every single case. The fact that the pipe is divided by joints makes its total resistance, of course, higher than if not so divided. On the other hand, the pipe is buried in the ground surrounded by moisture. There is, therefore, a conducting path around each joint, and for that reason and also for the reason that gas
5866 pipes have very much larger cross-sections than cable sheaths, some current will flow along the gas pipes.

Q. But this surface contact resistance, which you have already spoken of, comes into play at every joint, does it not?

A. The surface and the resistance is a very variable element, and it is sometimes very high, at other times very low, or it varies in one case. I have seen pipes where consecutive joints were destroyed on the positive side thereof; the current left and jumped over each joint, the joints being of high resistance.

Q. That is not an unusual condition, is it?

A. It is not unusual, although not very common.

Q. Now, I ' o turn to page 3038, and as to the testimony there you also made certain criticisms of Dr. Sever's testimony. Dr. Sever stated as follows:

"Q. Mr. Mathewson has spoken of the installation now being put upon the lines of the New York Central and the New York, New Haven & Hartford road, and you have stated that you are familiar with the installation which is being constructed. In your opinion, is there any great danger of stray currents from the power which would be furnished over this installation? A. That is on the New York Central installation.

"Q. The New York Central installation an ' the New York, New Haven & Hartford, both of which have been referred to? A. I do not consider that in the case of the New York, New Haven & Hartford there is sufficient proof or evidence that there will be any trouble from the alternating current system. The plans developed for the handling of the return current on the New York Central, as at first made, I feel are not sufficient to handle the return cur-
5867 rent, but this is now being modified so as to increase the capacity for taking care of this negative current and the endeavor being made to keep the stray currents out of the sub-surface conductors and off the cable sheaths."

Is that in any way contrary to your conclusions upon the same system?

A. No, except that, as I have already stated, that the New York, New Haven & Hartford, in common with the New York Central, uses direct current and not alternating current from Woodlawn in.

Q. Now turn to page 3935, on the top of the page, and I read as follows:

"Q. What did you mean exactly when you said that they had already commenced to put the Manhattan Elevated return system on the same basis as the subway? A. I meant that they are putting in return feeders and insulating these return feeders carefully from

the structure and service rails and insulating the negative bus in the sub-stations in the effort to keep the current on those return conductors and away from the ground; that is, providing a better path than would be provided through the ground back to the structure and the sub-station."

Does that differ in any way from your conclusion upon the subject in hand?

A. It does. I do not understand that they are putting in any return feeders whatever. What they are doing is to substitute for the uninsulated connections at the sub-stations and the structure, insulated ones, but not return feeders in the sense that there are any copper conductors paralleling the structure and serving to return current along the structure.

5868 Q. That is, they are insulating the negative bus in the station from the ground?

A. In the station, yes; but inasmuch as the negative bus at the station is connected with the structure and the structure is grounded we have a ground connection right at that point and at every pillar along the structure.

Q. But the return cable from the bus to the structure or from the structure to the bus is being insulated, whereas formerly it was bare?

A. Yes.

Q. And that is for the purpose of confining the current to the cable and preventing any from straying therefrom?

A. It is for that purpose, yes.

Q. On page 3913 of the record Prof. Sever has stated, in answer to a question:

"A. Every effort should be made by operating companies to keep the current on their own property, their own paths of conduction, to diminish their own loss, and to prevent trouble with other systems, other properties."

Do you agree with that statement?

A. Why, yes.

Q. Now, you say that answer implies something. What implication do you give to it?

A. Well, the question asks whether the stray currents do not mean a loss of energy and therefore a loss of coal and therefore a loss of dollars and cents, and I had reference to that. They must make every effort to keep the current on their own property because they would have loss from electrolysis of their own cables, for instance.

Q. Then I take it from your answer that it does not mean a loss of energy or a loss of coal if the current strayed?

A. It is a saving in coal and a saving in energy if the system is so grounded that a considerable part of the current returns by way of the ground, and not a loss. I gave an instance in my direct

5869 examination: for instance, if the Manhattan Elevated were perfectly insulated and the current in returning experienced a drop of voltage corresponding to a loss of 10 per cent. in energy, and that on the other hand it was so thoroughly grounded, that one half of the current returned by way of the ground, we would

reduce our loss to 5 per cent. and therefore we would save 5 per cent. of energy and coal.

Q. Well, that would simply mean, would it not, that any company which would have a condition of that kind would be taking advantage of return systems of other companies which might be in the ground?

A. They certainly would.

Q. Is that an effort which is being made by the various companies using or supplying power in the city?

A. Not an effort by the companies supplying power in the city, no. They are incidentally doing it in some cases, however.

Q. And trying to stop it in other instances?

A. They are making some efforts that have been described to minimize it, but that won't stop it.

Q. And never have been able to stop it?

A. Never will be able to stop it.

Q. And never have been able to stop it?

A. The Manhattan Elevated has only been in operation a few years. It is my opinion they never will stop it entirely, and it is also my opinion that the methods they are adopting now will not entirely stop it, for the reasons I have already stated.

By Mr. MATHEWSON:

Q. You mean it has been in operation electrically only a few years?

A. Electrically I mean, of course.

5870 By Mr. KIRBY:

Q. These experiments which you have spoken of as having been made by you, were they laboratory experiments?

A. I have made both laboratory experiments and I have made electrolytic tests out in the ground in Jersey.

Q. You haven't made any tests here in the city?

A. I have made tests in the city, measuring potential differences between the Manhattan Elevated and the——

Q. (Interrupting.) But you never made any electrolytic tests?

A. Yes, electrolytic tests.

Q. You never made any tests upon electrolytic action in itself?

A. I don't know what you mean by that.

Q. Well, you have made laboratory tests where electrolytic action has been set up, and where you observed the form of electric current and the deposit of the electrolyte?

A. Yes.

Q. Have you ever made any such tests outside of the laboratory?

A. No.

Q. Not even in Jersey soil?

A. I have made measurements on pipes and so forth as I dug them from the Jersey soil.

Q. And such would or might not show a flow of current?

A. They did show a considerable flow of current and pittings.

Q. And from that you would make deductions as to whether or not those pittings were due to electrolytic action?

A. Decidedly.

Q. Would you make analysis of the soil at the same time to ascertain what the change would be in that soil, or what it was originally?

A. I did not make such analyses, no.

Q. And wouldn't you consider it an advisable thing to do in substantiation of your conclusions as to what electrolytic action
5871 would do?

A. It is perhaps advisable, but not at all necessary.

Q. As a matter of fact, isn't it customary in conducting such experiments to very carefully analyze the soil or test it for its acids, or to see what salts may be in it, both before and after?

A. Not at all in the ordinary experiments.

Q. But where making experiments to come to a positive conclusion, wouldn't you consider it advisable?

A. I did do it in my laboratory experiments.

Q. But you did not carry such refinements to the experiments made outside of your laboratory?

A. No, sir.

Q. Isn't it customary to carry those refinements into all experiments of this nature?

A. No, sir.

Q. You would not consider it better practice to so do?

A. I should consider it better practice, but it is not customary, for this reason, that the results obtained in thousands of soils that have shown uniformly and without exception that when a current leaves pipes for these soils we get electrolytic corrosion, and very careful experiments made in Germany by this Commission of which I spoke, show that in all the soil they examined had this condition and constituency that when the current leaves we get destruction corresponding to the current.

Q. I do not think there is any question of disagreement on that point, but is it also not a fact that in these experiments which you have spoken about as having been made in Germany and accompanying the report as to the amount of current, the pittings and such, there is a report giving the chemical analyses of the earth in which the conductor was buried and the change which was due to the flow of current to that earth?

A. The experiments were conducted on a very elaborate
5872 scale by Prof. Haber, of Carlsruhe. He made a large number of both chemical and electrochemical researches and they were embodied in this report, and I am familiar with the report.

Q. Then I am right, there were chemical analyses made?

A. Yes, in that particular case, but in this country I have examined hundreds of reports on electrolytic surveys, and I do not recall any at the present time in which analyses of the soil were given. It is not the customary thing at all.

Q. But probable in the future that such refinements will be used by you?

A. No. In view of the light that we have got on the subject from these very German experiments it is not necessary.

Q. But advisable. Now, you have spoken of your report to the Committee on Electrolysis of the American Gaslight Association. That is the same report to which I have made reference in the examination of Professor Sever?

A. Yes.

Q. I understand I am right in saying that you worked with, or Professor Sever worked with you, in that matter to some extent?

A. I called on Dr. Sever, who was very kind to me in opening up his entire electrolytic library, which is very extensive, and I copied down all the important articles, and promptly obtained copies myself, and then I went further, and saw a lot of other friends, and read over a lot more articles, and I got together everything that could be obtained from every possible source, because I wanted to make this report as complete and comprehensive as I could make it.

Q. Making use of such eminent experts and authorities as you could find?

A. Yes.

Q. Professor Sever included?

A. Yes, one of them; one of the important ones.

At 1:15 p. m. a recess was declared until 2:30 p. m.

5873 After Recess.

ALBERT F. GANZ resumes the stand for further examination.

Cross-examination by Mr. BURR:

Q. You say, Professor, that a neutral is grounded as a safety measure for the consumer. What do you mean by that exactly?

A. If the neutral were not grounded, then when an accidental ground occurred on one side of the system, the consumer standing on a grounded spot and coming in contact with the other side would receive a potential of 240 volts, whereas with a grounded neutral, the highest potential that any consumer can ever receive by coming in contact with either side of the circuit while standing on the ground, is 120; and further than that, as I have explained, by thoroughly and completely grounding the neutral and accidental ground which may be produced on the consumer's premises, can immediately correct itself by the safety fuse burning out when it occurs.

Q. In other words, it is a precautionary measure to prevent damage to the consumer, or to his property, is it not?

A. And also to protect the service mains in the street, and so assure continuity of service, yes. In addition to that, I might add that if the neutral were not grounded and by some accident one side of the circuit should come in contact with the neutral conductor, then the double voltage would be thrown onto the one side of the circuit with disastrous results.

Q. Does electrolysis affect only mains and services?

A. Electrolysis will affect any and every metal from which current passes to the ground.

5874 Q. So that a person living alongside of the elevated railroad whose property was affected by electrolysis would be able to trace it to the source from which it came?

A. He would not necessarily be able to trace it to the source from which it came, no.

Q. Why not?

A. Because it takes rather elaborate instruments, in some instances, to trace a current. Currents are not in themselves traced, they do not carry any characteristics, and it takes several experiments to determine where they come from.

Q. Very true, and by those experiments you located these stray currents affecting as you claim the service pipes which have been offered in evidence here, to the substations of the elevated railroad?

A. Yes, sir.

Q. Now, with the same experiments a person residing along the line of a railroad whose property was affected or injured through this electrolysis would be able to trace it to the same source?

A. Not so easily, because the substation of the elevated is the centre to which all the current emanating from that substation must return, whereas a person living alongside of the structure itself does not live in such a favorable locality for receiving stray currents.

Q. I understood you to say this morning that electrolysis not only would be found along the line of where the subway was constructed, but in other streets where it was not constructed?

A. I made no such statement, at least not in the terms you have used. If you will refer to my testimony and tell me where I made such a statement I will explain it.

Q. When were you detailed by the Consolidated Gas Company to make the investigation of the effect of electrolysis on the mains and services?

A. On December 24, 1906.

5875 Q. Have you ever made any investigations for them prior to that?

A. Not on behalf of the Consolidated Gas Company, no.

Q. But you had on behalf of the Edison Company?

A. I had been conducting experiments not especially with that in view, but for other purposes for the Edison Company. I was retained last summer by the Edison Company to make certain other investigations in connection with their waterside plants; that involved making tests of this character at that point.

Q. From my notes I see that you stated that the effects as shown on these pipes to which reference was made and your attention especially called this morning, were due to the installation of electrtrity by the Manhattan Railway, and this was true even on streets where the L-road does not run, do you recall making that statement?

A. I do; and that particular street is the street on which the substation is situated, and, therefore, in greater danger; pipes in that street are in greater danger than pipes in many other parts of the city adjacent to the L structure. It was one of the most dangerous spots in the city.

Q. Had you had any experience with the mains or services of the Consolidated Gas Company or any gas company in the City of New York prior to the investigation which you made on the 24th of December?

A. No, sir.

Q. Do you know that there are mains and services in the streets of the City of New York which have been there for a period of fifty to seventy-five years?

A. I have heard such statements made.

Q. You heard Mr. Maxwell say, with regard to these particular pipes or services, that they were in his opinion extremely old pipes; do you agree with that statement?

A. I don't know.

Q. In fact, you cannot say whether they are forty, fifty or seventy years old?

A. I cannot.

5876 Q. Do you know how long it is since the electrification of the L road in the City of New York?

A. Yes, sir.

Q. How many years ago is it?

A. It was between 1902 and 1903, operation began somewhere in that time.

Q. Would you swear from a mere examination of these pipes produced in evidence that they were not in the same condition in the year 1900 as they are today?

A. You mean from the appearance of the pipes and nothing else?

Q. Yes.

A. I would not.

Q. You could not?

A. No.

Q. I think you said in reply to a question by Mr. Kirby that you did not know the character of the soil either from which they were taken?

A. Not specifically. I do know in general what the character of street soils is, and especially in New York, where it is generally known that salt is present.

Q. Well, I am speaking and having especial reference to these exhibits here.

A. No, sir.

Q. And you say that these service pipes brought here as exhibits were connected to the mains? Do you know that of your own knowledge or is that the result of the information given by Mr. Maxwell?

A. It is the result of the information given by Mr. Maxwell in his testimony.

Q. So that as I understand all that your testimony says and all that you mean to say is that in your opinion, and that opinion is based upon the readings and the maps here made by these other gentlemen, Mr. Varley and Mr. Maxwell, the pittings on the pipes produced here are as a result of electrolysis?

A. It was in part due to electrolysis, yes.

Q. When you say that currents escaped from the L road

5877 through poor bonding, what do you mean exactly by that?

A. I mean that the L road depends upon its structure and the surface rails to bring the current back, and that if the

bonding which unites the elements of the structure, is defective in any way then potential differences would be set up between parts of the structure and these parts, being grounded through the pillars, are thus able to set up stray currents to the ground.

Q. When you speak of poor bonding do you use it as synonymous with defective bonding?

A. By either poor or defective bonding I mean bondings in which the bonds do not properly connect the pieces electrically together.

Q. Well, that is due, is it not, to negligence or carelessness on the part of the people operating the L road?

A. Not necessarily. It may be due to accident. Vibration at a specific point may loosen the bond, and other natural causes may make a bond defective in its contact at such point.

Q. Can that accident be guarded against?

A. Not entirely, no.

Q. However, can it be provided for or guarded against?

A. Nobody knows.

Q. That is a pretty broad statement, "Nobody knows," Professor.

A. Well, I think it is true.

Q. Now is it or is it not a fact that water pipes are more liable to be affected by wandering electric currents than pipes containing gas?

A. It is not a fact.

Q. What is the difference?

A. No difference.

Q. That is, it will not affect the water pipe as much as it will the gas pipe, if there is no difference in the situation?

A. I did not say that. I said the pipes being otherwise equal, whether they contained gas or water it makes no difference substantially, perhaps with this one exception, that if a pitting is
5878 nearly through the pipe then the pressure of the water might dislodge the remaining part of the iron and produce a leak, and that leak, of course, would wet the soil and make it a better conductor for the current to the works, whereas gas flowing through the mains at perhaps one-seventh of a pound pressure would not escape so readily and not impress itself so quickly, and it is for that reason that gas pipes may be undergoing a great deal of destruction before anybody knows it, whereas water pipes make themselves almost immediately known.

Q. This lead cable to which you have referred this morning, that is not placed in the ground, is it? It is placed, as I understand it, in a conduit?

A. In a tiled conduit.

Q. What is the object in placing it in the tiled conduit?

A. The object is to make it possible to withdraw the cable and substitute a new one when this becomes defective, and in general the object of tile construction is to have subterranean passages into which cables carrying conductors for electricity may be drawn or withdrawn at will, for the same reason that in modern house wiring we instal pipes and draw wires into those pipes. We do not have to tear up the street to replace the cable.

Q. It is stated in a work written by Hughes and O'Connor, entitled

Gas and Gasworks, published in London by Crosby, Lockwood & Son, in 1904, that the duration of mains depends entirely upon the soil in which they are laid. Does that conform to your opinion?

A. I should imagine that was so.

Q. Calling your attention to complainant's Exhibit 324, you say there is current along the length of the lead-covered cable?

A. I do.

Q. Now, when a draught of warm moisture-laden air in summer flows along the cooler interior of a buried duct, it deposits moisture, and if in addition manure dust and street dust enter the duct
5879 also, will not this solution of manure corrode and even pit the lead cable, without the aid of an electric current?

A. It might do so.

Q. Is it not a fact that white lead, carbonate of lead, is made by corroding common lead with manure, and is not this done without electricity?

A. I am not familiar with the process.

Q. Have you ever seen pitted pipes from breweries or ice manufacturing establishments?

A. No, sir.

Q. Do you know that boiler plates pit in the presence of the purest water?

A. I do.

Q. Do you know of any case of pitting where there could not be any extraneous current of electricity?

A. Well, boiler plates is an instance that you have just cited yourself.

Q. Outside of that?

A. I do not recall any.

Q. Can you say what pitting would have happened to these exhibits, assuming there was no extraneous electric current?

A. No, sir.

Q. Now, the gas mains of the Consolidated Gas Company are cast iron, are they not?

A. I understand they are.

Q. And the service pipes are wrought iron?

A. Yes.

Q. Is there not, in the presence of moisture, an amount of galvanic action between cast iron and wrought iron?

A. In the presence of moisture there is galvanic action between any two metals which are in any way different.

Q. That answers the question. I refer simply to cast iron and wrought iron?

A. A slight action.

Q. And this action may be caused by the junction of two metals with any damp material, may it not?

A. Yes, but these junctions have existed for all the ages.

Q. If there were salt or free acid in such moisture this action would be aided?

5880 A. It would, but so would the action of electric current be still more if aided.

Q. But you admit that the action would be aided if there were salt or free acid in such moisture?

A. Certainly I do.

Q. Is it not a fact if wrought iron and cast iron were joined by a drop of pure water there would be enough current passing from one to the other to deflect a galvanometer?

A. If the galvanometer were of sufficient sensitiveness, yes.

Q. And such galvanic action would produce electrolysis, would it not?

A. It would produce a slight amount of electrolysis, yes.

Q. Would it not produce the same pitting of the pipe as shown on these exhibits?

A. That is not the general experience, and I may say for this reason, that while, of course, electricity has been commercially used only for a comparatively few number of years, yet these galvanic currents of which you are speaking have existed as long as pipes have been in the ground, and any galvanic current which could be produced thereby have also existed long before we knew anything of electricity, and it was also a fact that we did not notice these pittings to any extent before we had these railroads straying currents into the pipe and producing the pitting.

Q. Is galvanic destruction of iron in pipe any different from electrolytic destruction of iron in such pipe?

A. Why, it is the same thing, of course.

Q. Exactly what action takes place when an iron pipe is destroyed by electrolysis?

A. The current in leaving the pipe and going to ground decomposes the salt present in the ground, forms an acid and the acid attacks the iron and forms again a salt; that same action is then continued, and it is for that reason that the electric current when it passes from a pipe to the ground produces this serious pitting, this
5881 serious corrosion, because the production of the electrolysis always reproduces the same conditions which are needed for this action.

Q. What becomes of the iron?

A. It goes into solution as oxide or chloride, or sulphide, or whatever compound, depending upon the nature of the soil in which the action takes place.

Q. Might not the condition of these pipes in evidence here be caused by galvanic action?

A. Galvanic action is electrolytic action; it is one and the same thing.

Q. Well, then it might have been caused by galvanic action?

A. The evidence in the case shows that currents were flowing along the gas pipes in this vicinity, that there was a potential difference between each service and the elevated pillar which was positive, and ground, which is always moist, was present between this elevated pillar and between these pipes and, therefore, a current must have flown, and therefore I can say positively that there was electrolytic action due to the stray currents.

Q. I am speaking of the appearance of the pipes themselves; you

could not tell but what their present condition might have been caused through and from galvanic action?

A. I said this morning in my testimony that the pipes themselves, taken alone separately, are not sufficient evidence, although some of them show pittings which experience has taught are very characteristic of electrolytic pittings from stray currents.

—. The testimony is here that all the exhibits shown come from two square blocks. Does not this indicate a local condition for these two square blocks and not for the whole city?

A. The other evidence shows that this vicinity has decidedly a local condition caused by the stray currents from the Manhattan Elevated Railroad.

Mr. BURR: That is all.

5882 Cross-examination by Mr. KIRBY:

Q. Wherein do electrolytic pittings from stray currents differ from electrolytic pittings which may set up from and are formed by the pipe as one of the elements, and some other pipe or substance as another element, and the moist earth in between as the electrolyte; wherein would the pittings differ in one case from the other?

A. In degree; because the electromotive force which could possibly be set up between the pipes as mentioned would be so low it could not produce in my opinion the serious pittings we find when stray currents due to variable voltage——

Q. But the characteristic marking in one is identical with that in the other?

A. One would naturally expect them to be the same, and yet——

Q. Well, they are the same?

A. I don't know that they are. I notice that the experience has shown that when corrosion is produced by stray currents we have decided pittings, whereas the ordinary corrosion in pipes due from moisture while undoubtedly due to some galvanic action, does not show such pittings and it is only due to the fact that stray currents flowing at comparatively high voltage produce a greater intensity at the point where they leave the pipe.

Q. Would the pittings be deeper in one point than the other?

A. No, though generally they would be deeper with stray currents.

Q. If we had no stray currents, but if there remained the local galvanic action for a couple of years it might be the same depth, might they not?

A. If you assume that during all that time the current left from the same spot and there was no change in that——

Q. Assume that.

A. Yes, of course.

Q. So, as a matter of fact, no matter what the source is,

5883 the result produced has the same general characteristic?

A. It may have, yes.

Q. Now, you have said that since the use of electricity has come into effect the pittings and destruction due to the electrolytic causes were such as they had never been before. What experience have

you had in the examination of pipes buried in the ground which would lead you to make such a statement?

A. The experience gained by examining several hundred reports, and examinations of others made in this country, in England, in Germany, and made in my capacity as consulting engineer for the Electrolysis Commission of the American Gaslight Association. In addition to that I have examined probably one hundred or more—several hundred pipes myself at different times in order to familiarize myself with conditions. I made all these investigations of other reports so as to get a broad view of the situation and see—learn what the effects were not only in this vicinity but in all other vicinities.

Q. Didn't you read in those reports that pipes had been entirely destroyed where there had been no outside source of electric current at all?

A. Oh, yes, they may be so destroyed. In fact, I know that in the direct vicinity of gas works they sometimes are destroyed, due to the local condition which existed in such places, and may be also destroyed in other localities where there are some conditions favorable thereto.

Q. Did you read the Report of Investigations made in the City of New Orleans in 1869-1870-1871 to the effect that entire services had been destroyed where, and at that time, there was no other source of electricity in the City outside of galvanic action which might have been set up entirely locally between the pipe and the surrounding substances?

A. I do not remember reading such a report, but you are
5884 speaking of the services being destroyed, and I have not claimed at all that in my experience such services and mains are not destroyed by ordinary chemical action. I have only claimed that these peculiar pittings are not as a rule found.

Q. By ordinary chemical action do you mean action which differs from that which would result in galvanic action set up between the pipe and some other substance, with the earth or moist soil or whatever it might be as the electrolyte?

A. The two actions go right into each other. Electro-chemistry and chemistry are not divided by any sharp line.

Q. So you would not be able to say whether it was a real chemical action, an actual subject of loss?

A. No.

Q. Or that it would be combined with electro-chemical action or merely electro-chemical action by itself?

A. No.

Q. It might be one or all?

A. Yes.

Q. And that it might pit or be partially destroyed or entirely destroyed dependent upon the intensity of the current and the local conditions.

A. Yes, but it has been the general experience that this peculiar pitting is only found where there are stray currents.

Q. Well, before the use of electricity was had, was not such pitting observed in pipes?

A. Only in very rare instances, not as customarily as observed now when we have stray currents. Such rare instances were undoubtedly due to the local action in which currents were actually got up in some way or another.

Q. Those might be set up by the pipes and some other substance forming a battery, and the soil being the electrolyte?

A. Yes, under extraordinary circumstances, yes.

Q. The elevated road, as you have stated, is making consid-
5885 erable effort to bond its rails and members of the structure. I presume that the up-keep of such system would be part of its maintenance, would it not?

Mr. MATHEWSON: Is that pertinent? Does it make any difference whether they charge it to capital or maintenance?

Mr. KIRBY: I think so.

Question allowed. Exception.

A. They are not making any particular effort at the present time or have not made any particular effort since the road was first electrified to improve the bonding to my knowledge. The bonding was installed when the system was electrified as part of the construction. The only change being made now is, as I have said before, in substituting insulated cables for uninsulated ones which connect the negative bus bar at each substation to the structure itself. The bonds will unquestionably deteriorate. That is, they will not always make as good contact as they may perhaps when first installed, and it will be an extremely difficult matter for the railroad company to so keep track of every one of those bonds as to keep them in perfect condition.

Q. I presume it is an extremely difficult matter for the railroad company to keep track of each rivet in its road, and yet, with proper maintenance, it keeps the entire structure in good working condition, does it not?

A. It is a very different matter. The bond may be good to all appearances, it may be riveted up tight, and yet an oxidizing coating may have formed between the material of the bond itself and the material of the structure, forming a higher resistance, and, therefore, a bad conducting point, although mechanically it may be a good point.

Q. And you can always test the resistance of the various bonds, can you not by——

5886 A. You can make a test determine the resistance of the bonds and bond contracts, yes.

Q. And if it shows a higher resistance than a bond of that size ought to have, it would lead an electrical engineer to suppose something was faulty there, would it not?

A. Yes.

Q. And a remedy could be applied, could it not?

A. Yes.

By Mr. BURR:

Q. May not those conditions to which you have referred calculated to entirely destroy services—may they not have existed in the two blocks from which these exhibits were taken?

A. I don't know what you mean.

Q. Well, you referred a few moments ago and, I understood, agreed with the proposition that through galvanic action these services might be entirely destroyed?

A. Services might be destroyed through galvanic action.

Q. Now, I say might not those galvanic conditions calculated to entirely destroy services have existed in the two blocks from which these exhibits were taken?

A. They might have existed, but if they did those conditions would be all the more favorable to the destruction due to stray currents from the Manhattan Elevated Railroad, which were present by the evidence here shown.

Q. As a matter of fact, galvanic action produced by the junction of cast iron and wrought iron would destroy the wrought iron probably within the course of four months, and certainly within a very few years?

A. No, sir. The galvanic action set up by the combination of wrought iron and cast iron is of such a low electro-motive force that the electrolytic action which that would produce, would, in my opinion, be insignificant.

5887 Redirect examination by MATHEWSON:

Q. As to the elevated railroad, there is a bond on every girder, supposed to be, is there not?

A. As I understand it, yes.

Q. And that would make a very great number of bonds to look after, would it not?

A. An enormous number.

Q. Is it not a fact as to the elevated railroad the fact that the structure is what is known as a pin structure on some of the lines would conduce to the straying of currents and the loss of conductivity?

A. Yes.

Q. Now, as a matter of fact, is it not true that it is not in the resistance in any single conductor but the total from its point of leakage to conductors and back through the earth to final destination which governs the flow of current?

A. Yes, sir.

Q. Is it your view that the elevated even when the proposed changes are made will be a greater danger in the straying of currents than the subway as at present bonded?

A. Decidedly so.

Q. Is it not your experience that in sub-surface conduits or vaults generally there is present moisture?

A. Always.

Q. You would make no exception of the ducts in which these lead cables are, would you, from your general experience?

A. No, sir.

Q. You say that the maps show currents in other streets than the streets where the elevated is located, and you referred to Spring Street, where the sub-station is. The question which I asked on my

direct examination is whether the currents shown as existing by the red line on the map of 1903, where those red lines appeared on other streets than where the elevated runs, as, for instance, up Broadway, might not also have come from the elevated currents?

5888 A. The red lines do not represent currents but positive potentials and they, in my opinion, are due entirely to the elevated railway.

Q. You said that in your investigation of the currents of the Edison Company you discovered a maximum of .4 of a volt. Is such a voltage as that dangerous or in-ocuous?

A. The .4 was the average of the maximum values, and I should say that such a value was entirely harmless.

Mr. MATHEWSON: That is all.

By Mr. BURR:

Q. I just want to call your attention—are you acquainted with Dr. Elliott of the Consolidated Gas Company?

A. No, sir.

Q. If Dr. Elliott of the Consolidated Gas Company in a proceeding against the city entitled, "In the matter of opening West Farms Road and Westchester Avenue to Southern Boulevard and Boston Road" last month stated that a small amount of salt in solution would corrode, would you agree with that proposition?

A. I could not say anything unless you give me further details.

Q. If he stated with regard to the mains and services that it would corrode them in a very short time, it may be a month or two, or it might possibly be a year, but certainly within a year they would have to have very serious repairs, would you agree with that statement?

A. I don't know.

Q. What did you mean by pin construction as referred to by Mr. Mathewson in bonding?

A. I mean instead of being riveted throughout, the 9th Avenue L is occasionally put together by pins, which do not make as good contact as a riveted structure would, the pin being for the purpose of enabling expansion to take place, just as, for instance, we have on some bridges.

Q. Don't they use solder?

A. Hardly.

5889 By Mr. KIRBY:

Q. In your answer to Mr. Mathewson's hypothetical question having to do with the entire flow of current, you also intend that that depends upon the resistance which is interposed as well as the point from which——

A. That, of course, includes that.

Q. That should be included?

A. Surely.

Q. And you do not mean by that that the flow of current from any one point depends upon the difference of potential to some other point and the conductivity of the substance which is between?

A. No.

Q. You could not tell by looking at the outside of a rivet whether it was rusted inside, could you?
A. No.
Q. And no one else could?
A. No.

ALEXANDER MAXWELL, recalled for further examination, testified as follows:

By Mr. MATHEWSON:

Q. Referring to Exhibit 307, the question has been raised as to the method of determining the measurement of .95 amperes from main toward the house. This is the line from the main towards the house line and not towards the elevated, is it not?
A. Yes, sir.
Q. Did you determine that by running a wire from the main to the elevated pillar or in some other manner?
A. I made that measurement as indicated in this sketch (indicating).
Q. Just describe it if you can?
A. This measurement was made by taking the drop in milli-volts across or along a measured length of the service pipe and calculating the current from tables giving the resistance of that pipe.
5890 Q. So it was a measurement of current?
A. Yes, sir; that was the purpose of the measurement.
Q. And the measurement of current on the surface pipe would be certainly as heavy, would it not, as it would along the mains from which the service pipe came?
A. Yes, sir.
Q. The question has been asked about moisture in the ducts. When these lead pipes were drawn out did you happen to observe the manhole through which they were drawn, whether there was moisture within that or not?
A. Yes, sir, I was there when this cable was drawn out and the manhole had moisture in the bottom and the manhole was evidently moist.
Q. You did not see any manure in it, did you?
A. No, sir.
Q. The question has been raised as to the services which ran up from the main to the Manhattan Elevated stations. Are those risers insulated or uninsulated?
A. Those I have seen are insulated.
Q. Special insulating joints, are there not?
A. Yes, sir.
Q. And did you make any measurement of difference of potentiality as between the sections on each side of the joint?
A. Yes, sir, I read the difference of potential between the station side and the main side, that is the side connected to the gas main and found considerable difference of potential.
Q. How did you find that compared between the difference in po-

tential in the elevated columns and the mains as you took it in the street close by?

A. They were in exact comparison practically.

By Mr. KIRBY:

Q. Have you your readings of the difference of potent-al across these joints in the risers?

A. I have them, yes, sir.

5891 Q. Can you tell us how great a difference there was?

A. Not for any particular case without referring to the original reading.

Q. Did you go all the way up to the risers or simply take the bottom joint?

A. I read across the insulator, from one side of the insulator to the other side.

Q. Where is that insulator placed with reference to the ground?

A. Two or three feet above the ground ordinarily.

Q. Did you not go farther up on the structure?

A. No, sir, not for that measurement.

Q. Did you not make any measurement on the risers then or at another joint on the other side of the insulator?

A. To include another joint?

Q. Yes.

A. No, sir.

Q. So you don't know whether or not there was any difference in potential between the joint immediately above the insulator and the joint immediately above that?

A. I don't believe I catch your question.

Mr. MATHEWSON: There is only one insulated joint.

Mr. KIRBY: I know that.

Q. You took a reading across that insulated joint?

A. Yes, sir.

Q. So we have the difference in potential in the riser underneath, that is, the under side of the insulator and on the further side of the insulator?

A. Yes, sir.

Q. Now, we will go up fifteen feet on the riser, and we will assume that we desired to take a reading at that point, between that point and, say, ten feet above that. Did you take any such readings?

A. No, sir.

5892 Q. Did you make or have any analysis made of the substance which — in the duct out of which Exhibit 324 was drawn?

A. What substance?

Q. The moisture that was there?

A. No, sir.

Q. Or dust or whatever it might be. It was moisture, wasn't it?

A. All ordinary water what I saw.

Q. You did not analyze it, did you?

A. No.

Q. Did you test it with litmus papers to see whether it had any acid reaction or not?

A. No, I could not say.

Q. Where is the pipe which accompanies this Exhibit 307, what pipe is that?

A. Can you tell me what the exhibit number is which corresponds to Exhibit 307?

Mr. Mathewson: 306.

(Pipe produced.)

Q. Referring to Exhibit 306, I understand you that this is the pipe set down on Exhibit 307 as the one upon which you took readings of the voltage at different points?

A. Yes, sir.

Q. Now, did you remember where on this pipe you took, say, your first reading?

A. No, I could not say.

Q. How far distant were those points?

A. Probably as far apart as I could get them.

Q. Probably six feet apart, the length of this pipe, say?

A. As nearly six feet as I could get it, I don't remember.

Q. And those readings gave you a difference in voltage of 1.4 volts?

A. Oh, no, that is another measurement altogether. That is the difference in potential.

Q. Then this statement down here of .95 amperes is simply the deduction which you made from the readings which you took, applying it to certain tables which you had, to give the resistance of a pipe of this diameter?

A. Yes, sir.

5893 Q. Did you make any allowance for the increased or decreased resistance which the pipe might have by reason of the condition it is in?

A. No, sir.

Q. What tables did you use?

A. Some tables that I obtained indirectly and which I believe were originally computed by Mr. Knudson.

Q. For what kind of material was that table prepared?

A. Wrought iron pipe.

Q. Did it give different diameters of pipe?

A. Yes, sir.

Q. Different thicknesses of pipe?

A. Standard thicknesses; that is, it was for standard pipe.

Q. Do you know whether or not this pipe is standard pipe?

A. No, sir.

Q. And then this result of .95 of an ampere is simply without correction of any kind for those matters I speak of?

A. Without those refinements, yes, sir.

By Mr. Burr:

Q. Do you recall at what side that pipe, Exhibit 324—how it lay in the conduit, which was the bottom of it?

A. This would be the bottom (indicating).

Q. The side on which the corrosion is was the side which lay on the bottom of the conduit?

A. Yes, sir.

Q. Do you wish to be understood as saying positively that there was no dust or other street refuse in that conduit?

A. I did not see any.

Q. Well, you did not look for any, did you, just pulled the lead pipe out?

A. Yes, sir. Of course I could not see the length of the conduit.

5894 COLIN C. SIMPSON, recalled for further examination, testified as follows:

By Mr. MATHEWSON:

Q. What kind of pipe does the Consolidated Gas Company use in its services, standard pipe or otherwise?

A. Standard pipe only.

Q. Do you know of any instance where it has used anything but Standard pipe?

A. On service pipes, no, sir.

Q. Is there anything to indicate that that pipe before you to which Mr. Maxwell has just testified is not standard pipe?

A. No, sir, nothing at all.

By Mr. KIRBY:

Q. What do you mean by standard pipe?

A. What is sold in the market as standard weight pipe.

Q. What weight is that?

A. I could not tell you offhand from my head.

Q. Do you know what weight that pipe is, Exhibit 306?

A. I do not. I know if it is a Consolidated Gas Company's service, it is nothing but standard pipe.

Q. Do you know when that pipe was put in?

A. I do not.

Q. Do you know when it was taken out?

A. I do not.

Q. You did not know that these experiments were being made?

A. Which experiments?

Q. The electrolytic experiments?

A. Which ones are you talking about?

Q. All we have been hearing about the last two or three days?

A. I have not heard all of them.

Q. Did you know that any experiments were being made for the purpose——

A. I did—for the purpose of what? You did not finish your question.

5895 Q. For the purpose of being put in evidence in this case?

Mr. MATHEWSON: They were not made for the purpose of being put in evidence in this case.

The WITNESS: No, not for the purpose of being put in evidence in this case.

Mr. MATHEWSON: No notion of them until you put in your case and we had to rebut it.

Q. Then these pipes were removed without any knowledge on your part?

A. It depends where the pipes were removed from. If you will tell me where they came from, I will tell you whether I had any knowledge of it.

Q. This pipe was removed from 456 West Broadway.

A. If 456 West Broadway is at Spring Street and West Broadway they were removed with my knowledge.

By Mr. BURR:

Q. Mr. Simpson, you recall that when you were here a day or so ago on the stand, I called your attention to the question of services, you stating that the company could not put a main in the middle of the street because it would lengthen the service, and I asked you then whether you remembered stating that the services were, after being placed in the buildings, of no further utility to the company, that is, they became property that if the gas were discontinued you abandoned the property, the services themselves.

Mr. MATHEWSON: No, he did not testify to any such thing——

Q. One moment. I asked you if in a tax proceeding you
5896 did not testify so, and you said no, it must be somebody else——

Mr. MATHEWSON: I object to this.

Q. The case I had reference to is in the Supreme Court, entitled the People *ex rel* the Consolidated Gas Company against James L. Wells, and others, in Special Term, Part IV, November 17, 1905, where you appeared as a witness, do you recall that?

A. Yes, sir.

Q. And did you testify in that proceeding: "That it would cost ten times as much to take out services as we could get for the material. Q. In other words, it would not be worth taking up and carrying home? A. Not by any means. Q. Is that the reason why you stated you did not take out the three thousand services you referred to as being discontinued in a certain period as was mentioned by counsel for the respondent? A. Yes, sir. We never take out—we have probably sixty thousand of them to-day which are discontinued and they are not worth taking out." Was that your testimony on that occasion?

A. I would like to qualify my answer——

Q. Was that your testimony on that occasion?

A. I testified that where services were cut off from the mains and were no longer fit for use we never took them up; I never testified that a good service was abandoned.

Q. I am not referring to that, but to services that were discontinued.

A. We repeatedly, with two or three services in the building, we replaced one of them, and the other two or three which are no more fit to use would have to be replaced at large expense, and we cut them off at the main and abandon them.

Q. Did you so testify, and if you did, is it correct?

A. I would have to look over my testimony and be very careful about it before I answered that question.

5897

Q. Look at your testimony (handing book).

A. I may say in the first place that we could not or did not lay mains in the middle of the street because it took longer services. I testified that we did not because the city would not give us a permit, and on your question whether it would pay us, I said it would not, because we would have a longer service from each side of the street.

Q. Then I called your attention to this testimony and you testified you never made such statements as I quoted, but that it must have been somebody else.

Mr. MATHEWSON: He did not. He made no such statement.

The MASTER: It is hardly cross-examination of any direct examination brought out here to-day, but now that Mr. Burr has caught him—when I say caught, I mean caught him here in the room—he may proceed.

Mr. MATHEWSON: How is it possibly pertinent? What difference does it make whether we abandon services which are useless or not? Of course we do, and they are marked off the property, too.

Mr. BURR: That is what you say when you want to avoid taxes, but when you want to capitalize they all appear.

Mr. MATHEWSON: How does it help your case?

Mr. KIRBY: That is a matter of argument.

Mr. MATHEWSON: It is a waste of time.

Q. Well, I will not consume any more time now. Any time I would be glad to let you see the original papers.

A. Very well, but I want to look at this testimony. I have been on the stand a good many times in the last three or four years and I would not say what I testified to at any particular time. I know we have thousands and thousands of services cut off from the mains that are no longer of use, and the value of the material taken up might be fifteen cents and the cost of taking them up would be more than $15, and we would not be stupid enough to take that material up, no question about that. But a good service that is still connected with the main and still going into the house and ready to supply gas at any time is always left and is kept on our book as a service. If it is cut off at the main and abandoned it is taken off our books.

5898

Q. Did you not claim in that proceeding that the services became the property of the owner?

Mr. MATHEWSON: That is the inside service in the building. It is a legal question whether it is or not.

The WITNESS: If it is abandoned and he wants to take it he is welcome to it. We do not want it if it is an abandoned service.

By Mr. MATHEWSON:

Q. Where a service is abandoned, as you have indicated, it is taken off the books as an asset, is it not?

A. Yes, sir.

By Mr. KIRBY:

Q. You mean that you report to the other department of the company that it has been abandoned?

A. Not only that, but I take it off my schedule of services at the same time, and it is reported down stairs, too.

5899 OSCAR H. FOGG, called as a witness in behalf of the complainant in rebuttal, being duly sworn testified as follows:

Direct examination by Mr. MATHEWSON:

Q. Mr. Fogg, when Mr. Simpson was on the stand some days ago certain sketches were introduced in evidence showing the condition of the streets at various points, certain drawings or maps showing the mains of the company, subways and other structures. Were they prepared by you or under your direction at Mr. Simpson's request?

A. They were.

Q. And so far as the location of the mains is concerned, of course, the company has a record of that itself?

A. Yes.

Q. So far as the subway is concerned, was that drawn in from the maps of the subway company or their tracings?

A. Which subway do you refer to?

Q. I mean any of the subways where they occur?

A. The Rapid Transit Subway or others?

Q. Either one.

A. From the record of the company in every case.

Q. Did these measurements come out so as to take up the width of the street and fall into systematic order as you have them?

A. Yes.

Q. And are there manholes and hydrants and valves at one point and another by which you can test the accuracy of your map by the measurement of the manholes?

A. To a very great extent.

Q. And did you check up the sketches with the known dimensions and locations of manholes, valves and hydrants where they appeared?

A. Yes, in this way, with the various sections that are shown on city records, were taken from the city record by our men and verified by the street locations wherever that was possible.

Q. Exactly. And the completed work, as so testified, the
5900 sketches which are introduced in evidence are the drawings?

A. Yes, sir.

Q. Did you take certain photographs, or were photographs taken under your direction of the work actually in progress, showing the laying of the mains and the difficulties?

A. Yes, sir.

Q. The first one you show me is Manhattan Street east of Amsterdam Avenue, is that the trench for the laying of a main?

A. Yes.

Q. Gas main or water main?

A. Of a gas main.
Q. All these photographs were taken either by you or in your presence?
A. Yes, I think they were all taken by me.

By Mr. MATHEWSON:

I offer that in evidence.
Photograph received in evidence and marked Complainant's Exhibit 326.

Q. Was this other taken at 112th Street west of Second Avenue?
A. Yes.
Q. What sort of a main is that being laid?
A. Gas main.
Q. What size, do you remember?
A. 36 inches in diameter.

Mr. MATHEWSON: I offer that photograph in evidence.
Photograph received in evidence and marked Complainant's Exhibit 327.

Q. And this is one at 112th Street across Lenox Avenue?
A. Yes, sir.
Q. What does that represent?
A. That is a special flat steel box, which was necessitated by the shallowness of the Rapid Transit tunnel.
Q. In laying your main?
A. In laying our main, to replace the cast iron pipe ordinarily used.

5901 Mr. MATHEWSON: I offer that photograph in evidence.
Photograph received in evidence and marked Complainant's Exhibit 328.

Q. This place which I show you now represents the intersection of 116th Street and St. Nicholas Avenue and Seventh Avenue?
A. It does.
Q. Are those chains supporting pipes of one kind or another, while the mains are being laid?
A. Yes, sir.

Mr. MATHEWSON: I offer that photograph in evidence.
Photograph received in evidence and marked Complainant's Exhibit 329.

Q. And is this photograph which I now show you a photograph of St. Nicholas Avenue and 116th Street, looking north?
A. It is.
Q. And that also shows the work in progress supporting the different pipes?
A. It does.

Mr. MATHEWSON: I offer that photograph in evidence.
Photograph received in evidence and marked Complainant's Exhibit 330.

Q. Is this pipe laying at 111th Street east of Third Avenue, which I now show you?
A. Yes, sir.
Q. What size main is that?
A. 36-inch.

Mr. MATHEWSON: I offer that photograph in evidence.
Photograph received in evidence and marked Complainant's Exhibit 331.

Q. Where is this work proceeding in the cut I now show you?
A. That is at the northeast corner of Broadway and Manhattan Street.

Mr. MATHEWSON: I offer that photograph in evidence.
5902 Photograph received in evidence and marked Complainant's Exhibit 332.

Q. And this photograph that I now show you represents Broadway south of 131st Street, east side, does it not?
A. Yes, sir.
Q. What are the logs in the trench?
A. They are put on the rock after it has been prepared for blasting.
Q. The ordinances require you to cover the rock before blasting?
A. Yes, sir.

Mr. MATHEWSON: I offer that photograph in evidence.
Photograph received in evidence and marked Complainant's Exhibit 333.

Q. Where is this work going on in the one I now hand you?
A. That is on the east side of Broadway and Manhattan Street.
Q. Do you know what size main is being laid there?
A. 36-inch gas main.
Q. And the sheathing braces appear there?
A. Yes, they do.

Mr. MATHEWSON: I offer the photograph in evidence.
Photograph received in evidence and marked Complainant's Exhibit No. 334.
The MASTER: Are there any there where the blocks appear?
Mr. MATHEWSON: Do you mean underneath?
The MASTER: Yes.
Mr. MATHEWSON: I doubt if there are. These are taken from above. I do not think any of them show the bottom of the pipe as laid.
Mr. MATHEWSON: That is all.
Mr. KIRBY: Before taking up the cross-examination of Mr. Fogg I should like to have it stated on the record that the defend-
5903 ants move to strike out all of the testimony that has been put on record in reference to electrolysis, on the ground that the same is not proper rebuttal.
Mr. BURR: I understand it was taken subject to the same objection we made to the other witnesses on electrolysis, that it was not proper rebuttal.

Mr. KIRBY: And I now not only object to it but move to strike it from the record.

Mr. BURR: And I make the same motion.

The MASTER: Motion denied.

Mr. BURR: Exception.

Mr. KIRBY: Exception.

Cross-examination by Mr. KIRBY:

Q. Are you in the employ of the Consolidated Gas Company?

A. Yes, sir.

Q. In what department?

A. The Department of Mains and Services.

Q. Have you ever laid mains?

A. Yes, sir.

Q. Are you familiar with the method of work of laying mains?

A. I am.

Q. What position do you occupy in reference to that part of the work?

A. I am an engineer employed by the company.

Q. Do you have charge of the men putting the mains in the ground?

A. At times, supervision of the work.

Q. Now, taking up these photographs, referring you to Complainant's Exhibit 326, showing an excavation at Manhattan Street, east of Amsterdam Avenue, will you kindly state if you know the size of the main that is now in that trench?

A. 36-inch.

Q. Was that trench excavated for the purpose of putting down another main or for putting that main in?

A. That main only.

5904 Q. How is that main supported, does it lie upon the bottom of the trench?

A. It lies upon blocks.

Q. Can you see those blocks in this photograph?

A. I don't know, I doubt very much. That would be under the main, and I do not think you could.

Q. Is that the figure of a man that I see there?

A. Yes, sir.

Q. That man seems to have his hand at about the center of the pipe, does he not?

A. It appears so, yes, sir.

Q. He is standing up, is he not?

A. Yes, he is standing up.

Q. It would, therefore, appear that there is considerable excavating underneath the main, would there not?

A. No, I do not think so.

Q. You said the size of the main was how much?

A. 36-inch.

Q. Well, the man is more than 36 inches high, is he not?

A. His head is considerably higher than that.

Mr. MATHEWSON: You cannot figure on perspective when you are photographing down in that manner.

Q. Is it your testimony that the man is standing on a level with the bottom of that pipe?

A. That I cannot say.

Q. So that it might be that that excavation is lower than the bottom of the pipe?

A. It is possible; I don't say so.

Q. But from this photograph and from your impression, you could not inform us just how that pipe was laid in that trench?

A. I cannot because the photograph is rather indistinct there. It is a very hard place to take one clearly. It does not look clear to me from here.

Q. You see another pipe running more or less diagonally across the trench?

A. Yes, sir.

5905 Q. Held temporarily in place, I suppose, by chains thrown over a beam laid across the trench?

A. Yes, sir.

Q. Do you know what that pipe is, what purpose it serves?

A. Yes, that is a 16-inch water main.

Q. And was there prior to the putting down of the 36-inch gas main?

A. It was.

Q. That does not run the entire length of the trench, does it?

A. No, about the point I indicate here on the photograph it enters the ground again.

Q. That is the point where the chain supports it?

A. No, a little beyond where the chain supports it.

Q. It leaves the trench?

A. At a point beyond the chain, yes sir.

Q. So this position is one where the digging and laying is complicated by the water main crossing the trench?

A. Well, not to any great extent, no; that did not enter into any very great consideration at that point.

Q. Then the interference with the digging by that main would amount to practically nothing?

A. That would not have forced *us* down to that depth. There were considerable other substructure beyond that which do not appear in the photograph that forced us to make that trench in that way.

Q. But this did not cause any great care to be taken on your part?

A. Only the necessity of taking care of it and protecting it, because it was exposed in the trench.

Q. Turning to Complainant's Exhibit 327, showing an excavation at 112th Street west of Second Avenue. I ask if you know the size of this main shown on this trench?

A. That is a 36-inch gas main.

Q. And that has just been placed in the trench?

A. Yes, a comparatively short time, and it is all *for* in the process of construction.

Q. Not for repair or anything of that kind?

A. No.

5906 Q. I see no pipes or anything laid within the trench?

A. No.

Q. Do you know the width of these joists, which are thrown across from one side of the trench to the other?

A. Do you mean the width of the joists, between the sheathing or rangers?

Q. You see here the sheathing on one side, and here the sheathing on the other side. Going across from one side to the other I notice a piece of wood, which I call a joist; I don't know what you may call it; is that a proper designation?

A. A brace or joist.

Q. Now, that brace, we will give the length of that brace the distance from one side of the trench to the other, and we will call the height the vertical dimension of it; can you tell me the height of that brace?

A. I think it is about twelve inches high, as you express it, there; that would be the width ordinarily.

Q. My first designation, therefore, is more correct than the one I have been led into?

A. Yes.

Q. That is resting upon the top of the pipe, is it not?

A. No, within a short distance of it, not right on top of th- pipe.

Q. This photograph is too indistinct on the side to show the nature of the bottom of that trench, is it not?

A. Well, the light is so that it would not show it, is rather a clear photograph, but it does not show that owing to the darkness on the side of the pipe.

Q. You would have had to take that by flashlight to bring that out?

A. Yes, I suppose so.

Q. I notice on this joist running across the trench that there is a cable or rope of some kind. Is that for the purpose of supporting the pipe?

A. That is the rubber band, pouring band which has been laid over the pipe after they hav- poured the joint.

Q. I do not mean that, that is nearer the foreground of the

5907 photograph than I referred to. That is the crosspiece.

A. No. They are the iron clips or clamps which hold the rubber band together at the top.

Q. Can you give me the approximate distance from the point here at the top of this brace to which I made reference to the top surface of the ground here?

A. No, I cannot. That is very much foreshortened in the picture, and I would not be able to do more than guess at it.

Q. Would you think it was more than twice the distance of the cross-piece, twice the height of the cross-piece, or the width?

A. I do not believe so.

Q. The width being the term which we have agreed upon as more correct than the height?

A. Yes.

Q. This triangular arrangement which I notice over the trench is, I suppose, the bottom of the derrick with which the pipe is lowered into the trench?

A. Yes.

Q. Now, coming to Exhibit 328, showing an excavation at 112th Street across Lenox Avenue, this oblong box which I see is really an oblong wrought iron pipe, is it not?

A. It is a riveted steel box.

Q. For the purpose of carrying the gas over the subway structure?

A. That is right.

Q. And that in turn will be connected with the gas main?

A. Yes, sir.

Q. By a joint bringing it down to the particular dimensions of the main?

A. That is right.

Q. Do you know the width of that box?

A. Three feet four and a half inches inside.

Q. That would mean the over-all dimension would be several inches more?

A. You are referring to the width, from this part to this part (indicating)?

Q. Yes, across the trench?

A. Three feet four and a half inches inside.

Q. Is that inside or outside dimension?

A. Inside as I remember it.

5908 Q. Do you remember the width of the flange on either side?

A. Not exactly, I think it was about four inches.

Q. So that would be eight inches added to the inside dimension to get the full width of the box?

A. Yes.

Q. Here we observe the bottom of the trench, do we not? The sun seems to be reflected upon the bottom of this trench?

A. It is at a point beyond the subway wall.

Q. Now, I fail to notice any blocking upon the bottom. Can you point out any to me?

A. No, sir, there is none there.

Q. I fail to notice any sheat-ing on either side of the trench. Can you point out any to me?

A. There is not any there. There would not have to be any there. The subway roof was altered and a special construction was necessary to take the pipe and the flat pipe was laid directly on the subway roof and a special concrete base put in and steel I-beams set in the concrete base.

Q. Yes, but the bottom of the trench which we see beyond that is not sheat-ed?

A. No, that is not ready for the pipe.

Q. But the excavation has been partially made, hasn't it?

A. Partially made, it is not down to grade there, I don't think.

Q. You don't know whether or not it is down to grade?

A. Yes, I am quite certain it is not.

Q. Is there more excavation to be done?
A. Yes.
Q. Do you know how much?
A. No, not definitely.
Q. It is pretty nearly down to grade, is it not?
A. No, there is enough more to come out to permit the laying of a 36-inch pipe to pass under the hub of the water pipe which you see exposed. It had to be cut out.
5909 Q. This water pipe had to be removed?
A. Yes.
Q. You are sure that is a water pipe? Is not that a gas pipe?
A. No, that is a water pipe. It is a water pipe which goes into a dead end, just south and we had to cut it out at that point.
Q. Coming to Exhibit 329 showing an excavation at the intersection of 116th Street and St. Nicholas and Seventh Avenues, are these pipes I see supported by chains those which have been put in, or where is the pipe which has been put in?
A. The man in the picture is standing on the pipe which has just been put in or lowered into the trench.
Q. Do you know how deep the trench is at that point?
A. To the bottom of the trench is about eleven feet deep, measured from the street surface, or pavement surface.
Q. And does the trench continue here? What is this I see over the man's head?
A. That is the construction under the railway, where it was necessary to tunnel. We were not allowed to open and it had to be tunneled out and the railroad was over it.
Q. So there is a deep hole some eleven feet to the bottom or the top of the pipe?
A. To the bottom.
Q. Up to this point where the ragged edges indicate the tunnel?
A. That point is just at the south rail of the street railway company.
Q. Is this through dirt or rock, do you know?
A. Through very hard dirt.
Q. Is there any sheat-ing here?
A. There is none necessary at that point because of the very great hardness of the dirt; it was unusually hard.
Q. Coming to Complainant's Exhibit 330, showing an excavation at 116th Street, St. Nicholas Avenue and Seventh Avenue looking north——
A. That is practically the same point as the photograph you have just been looking at *it*.
Q. The largest pipe indicated here and the one lowest
5910 down in the trench is the pipe you have just put in?
A. Yes.
Q. Again there is no sheathing indicated?
A. No, only the bracing of the dirt that has been loosened up above by the derrick legs.
Q. No necessity to use sheathing?
A. Not at that point. Just that one point from the south side of

the street railroad tracks to the north side for a short distance it is very hard.

Q. Does this indicate any blocking?

A. The blocking is there, it does not show in this picture, maybe. Every foot of the main was blocked, or every six feet; I think I can safely say that I saw every length of pipe blocked.

Q. Are these two pipes shown here above the larger pipes gas mains or water mains?

A. I know that one is a gas main and I think that both of them are. One of them I am sure of. This one here (indicating).

Q. The next is Complainant's Exhibit 331, showing an excavation on 111th Street east of First Avenue. Is this a daylight photograph?

A. Yes, that is rather a poor photograph; strong sunlight and overexposed, I guess.

Q. I cannot make anything out of that.

A. This is the main here, and this is a pump. We were down to tidewater there.

Q. How far down were you in this excavation?

A. In its deepest parts we were down about twelve feet to the bottom of the pipe. At the part you are indicating with your finger, which is just where the main starts to go down, we had a cover of only three feet and some inches.

Q. What was the object of dropping the pipe at this point?

A. It was necessary to go under a sewer, some gas mains, a water main, subways and possibly some others; that is all I remember now.

5911 Q. And the size of this main was what?

A. 36 inches.

Q. None of the drawings which have been put in evidence and which were prepared under your supervision give a cross section of the avenue at this point, do they?

A. No, we did not go uptown that far with them. I don't think anything has been put in evidence above 42nd Street, and this was at 111th Street.

Q. Coming to Exhibit 332, showing excavation at the corner of Manhattan Street and Broadway, is there some tunneling being done here also?

A. No tunneling, no, sir. We are under a very large structure there. A subway manhole was here (indicating), and the subway entering on both sides, north and south, which rather gives the appearance of being tunneled, but it is actually a concrete structure. We turned right at that point, and did not follow right directly under the subway.

Q. And that meant tunnel work?

A. No, possibly only right under the crosswalk.

Q. Well, looking in the upper left hand corner of the photograph I notice several outlines of large stones or rocks, or what not. Did your trench continue in that direction?

A. No, sir.

Q. Your trench turned off to the right?

A. Followed the line of the subway shown here in this section (indicating).

Q. By here you indicate a block supported by a wire cable around a joist above?

A. That is a subway, the electrical subway; that is the concrete covering, protective covering, around the ducts which you see there.

Q. That is the Edison Company?

A. I don't know whether it is the Edison Company; it is one of the electrical companies.

Q. Either that or the Consolidated Telegraph, etc., Company?

A. I suppose so; it is one of those companies.

5912 Mr. MATHEWSON: Or the telephone company?

The WITNESS: I don't know just which one. A manhole is right there.

Q. And you followed under that subway?

A. Right at that point in crossing it, yes; crossing it and following the same general direction.

Q. And went underneath because there was not room enough between the top of this and the surface?

A. No, right above the point in the picture is a large subway manhole which we could not get past without going under it. The subway itself did not drive us down, but the manhole did.

By Mr. MATHEWSON:

Q. Do you mean the railroad subway, or subway for the surface railroads?

A. I mean the subway, properly speaking, the electrical conduits which were inclosed in this case with concrete.

Q. For the street railroads?

Mr. KIRBY: No, he means the subways carrying conductors, either for the Edison system or the telephone system, or the telegraph system, some one of the constructions carrying the electric conductors in the street.

The WITNESS: Yes.

Mr. KIRBY: And I asked him if he knew which subway it was and you heard his answer.

By Mr. KIRBY:

Q. This main drops down at this point, does it not?

A. No, sir, that is deep there already, it does not drop at the point where you can see it.

Q. How deep is that?

A. I know about what it was.

5913 Q. Is it ten feet?

A. No, it is nine feet.

Q. Here we have Exhibit 333, showing an excavation at the corner of Broadway, south of 131st Street, east side. There is no pipe in that trench at all, is there?

A. No, that is between street intersections.

Q. You mean by that this is running along——

A. It is running north at a point north of 10th Street, or it is between the north curb of 130th Street and the south curb of 131st Street.

Q. Is there any traffic along this avenue?

A. Yes, some.

Q. I notice rock piled up on the left hand side of the trench as we look at the photograph. That was taken from the excavation?

A. It was.

Q. Is this rock on the right hand side, or is that soil?

A. Soil, and may be smaller rock, which is not big enough to hand out in pieces, and it is thrown out by shovels.

Q. Is it your custom to throw your rock on one side and your soil on the other?

A. It is necessary to cart the rock away. For that reason, in that case, it was put on one side of the trench, where it could be reached from the roadway; there is no roadway on the right side of the trench in that picture.

Q. Do you mean there is a sidewalk there?

A. There is a sidewalk, no roadway for wagons.

Q. What do you mean by roadway for wagons?

A. I mean that the wagons could not go on the sidewalk.

Q. Why could they not go on the street?

A. They could.

Q. Then there is a roadway?

A. I say there is no roadway on the right side of the trench, so that the rock has been piled on the left side of the trench so
5914 the wagons could reach it and move it. The trench is at a comparatively short distance from the curb on the right side.

Q. And they could not load from each end, do you think?

A. From each end?

Q. Yes.

A. I mean that the wagons could not get in on this side (indicating). We have already thrown our earth here, and we are in rather close to the curb, and we cannot approach the trench from that side.

Q. Do you know how far it is from the immediate foreground of this photograph, to where I think I see a fence across it at the end of the open part?

A. No, not definitely. It is apparently about half the length of the block, I should say about one hundred feet.

Q. Has any pipe been put in this trench at this time?

A. No, the trench has not been gotten ready for it at this stage.

Q. Do you know where it commences?

A. In the street. No, this is Broadway, south of 131st Street.

Q. Where does that start, do you know?

A. That is a continuation of the trench that has been shown from time to time in the photographs. Do you mean right at this particular point?

Q. Yes, how far to this point have you laid your pipe?

A. I think at the time I took that photograph we were within a very short distance of it; in fact, we were held up—I remember quite clearly now the fact that we were within a short distance of this and the nature of the rock there and the trouble we had with it compelled us to stop the pipe work. I think the end is within comparatively short distance of it.

Q. A block?

A. Less than that.

Q. This dirt I see here will be thrown back in the trench?

A. The clean dirt in which there is no stone.

5915 Q. And the rock over here is going to be removed?

A. Will have to be.

Q. If there had been no rock, you would simply have tossed it all up on this side?

A. Yes.

Q. What is the character of the pavement here, do you know?

A. At that time it was macadam on a Telford base.

Q. Was it to be replaced by other pavement?

A. Yes. I don't know just how soon after we completed the work; it has been since replaced with an improved pavement.

Q. When was this photograph taken?

A. 1904, September, the latter part, or it may have been the first part of October. It was within a month either way.

Q. Most of these photographs were taken at the same time?

A. No, they were taken from the start right through the work. We started in April, and it was finished in October, all of the same year, though.

Q. Now, we come to the last one of these, Exhibit 334, showing an excavation at Broadway, north of Manhattan street, east side. Is it the same gas main?

A. The same main.

Q. And a continuation of the same trench?

A. It is.

Q. And is this macadam road here?

A. Yes, that is macadam.

Q. This main is being laid right up to the curb, is it not?

A. Yes, we were forced right up to the curb there by the other structures in the street, a big water main, the foundation of the Rapid Transit viaduct or the piers, which were very extensive, and spread out, and it was the only possible location there, and even then we had to go very deep.

Q. What is that, running along the right hand side of the trench?

5916 A. That is the same subway which was shown in another picture, that we had to carry in the trench and support.

Q. And naturally your trench had to be wide enough to permit the pipe to pass between one side of that subway and the other side of the trench?

A. Yes, that is right.

Q. Do you know the width of that trench?

A. No, I don't remember the exact width of the trench.

Q. Do you know the depth of the trench at this point?

A. At that point it had the same depth as the other picture we looked at a little while ago, just around the corner the pipe is about nine feet cover.

Mr. MATHEWSON: Nine feet to the top of the pipe, do you mean?

The WITNESS: Nine feet to the top of the pipe.

Q. Are there any obstructions other than this subway or the

manhole to the same that you encountered along that length of trench?

A. Yes, sir, a 36-inch water main just—it does not show there. It is at a point just north of the derrick.

Q. And you went under the water main?

A. And we went under the water main.

Q. There was not space enough to go over it?

A. No, sir.

By Mr. BURR:

Q. When did you say these photographs were taken, in 1904?

A. They were taken between the 22nd of April and the 28th of October, 1904.

Q. Was the object in taking these photographs at that time to show some especially difficult work?

A. Oh, no.

Q. What was it?

A. Merely as a matter of interest as the work went along and as a matter of record.

5917 Q. You do not mean to say you photographed the whole work, do you?

A. Well, so far as I found time and wherever it was convenient, yes. I took photographs along the line at intervals from time to time as I say for a matter of record.

Q. In addition to being engineer of the mains are you the official photographer of the company?

A. Not yet.

Q. You hope to?

A. I hope so.

Q. I notice in this Exhibit, Complainant's Exhibit 333, that there has been blasting there evidently, as the result of which there is a great deal of rock piled on the side?

A. Yes, that is true.

Q. What do you do with the rock after you take it out as it appears there?

A. It is loaded into wagons and driven away and dumped.

Q. Sold by the company, do you know, or do you know anything about it?

A. I have never heard of its having been. It was not on that work. I never knew of it having been sold.

Q. Did you dump it some place or give it away?

A. It is dumped at the same dumps where the earth is carted to, the excess earth when it is necessary to cart excess earth from a trench.

Q. Where is that point?

A. Various city dumps. I don't know their exact location.

Q. This Exhibit 334, is that immediately below the viaduct structure?

A. It is directly to the east of the viaduct structure, yes, sir.

Q. On Broadway?

A. On Broadway.

Q. What do you say was the particular use of this steel box as it appears on Exhibit 328?

A. It was to convey the gas, a special construction necessitated by the shallowness of the roof of the Rapid Transit subway in Lenox Avenue where we didn't have space enough to get the ordinary cast iron main across at that point.

Q. In other words you were able to convey the gas by that
5918 method at a comparatively shallow depth?

A. No. By that method we got more cover than would have been possible in any other way, getting the same capacity, that is the same capacity for the conveyance of the gas.

Q. Well, because of the fact of that iron structure you were able to convey gas at comparatively shallow depth in comparison with the large, round main that you speak of?

A. No, that is not the case. This was the only possible way of making that crossing at that point. It would not have been possible to put a cast iron pipe 36 inches internal diameter across there at all. The best possible thing to do was to put some special construction there that would give the same capacity for the conveyance of the gas and would permit of more cover. The construction or the height of the Rapid Transit roof at that point made it utterly impossible to give the proper cover on even this box.

Q. How much covering did you have?

A. We had about 16 inches. That was too little, but as much as possibly could be gotten.

Q. What was the depth of the trench at that point?

A. That is where the trench has been excavated for the connecting ends to go down to their normal depth. We went to the proper cover as soon as we could get away from the subway.

Q. I mean the immediate part of the trench in which that box was sunken?

A. There is no trench at that point. We have laid the roof apart, cut out the concrete construction of the roof, set in three-inch I-beams and constructed a special roof for the subway, but properly speaking there is no trench at that point.

Q. How long have you been engaged in looking after the mains of the Consolidated?

A. I have been employed by the Consolidated Gas Company since the early part of 1904.

5919 Q. Do you weigh the mains before you put them in the ground?

A. No, sir. We record their weight which is already marked on the pipe.

Q. When, before they are taken to the place at which they are to be sunk?

A. Yes.

Redirect examination by Mr. MATHEWSON:

Q. Referring to Exhibit 336, as a matter of fact, you went down in different parts of this trench or in laying this main as deep as fifteen or twenty feet, didn't you?

A. In two places that I remember we reached a depth of between eighteen and nineteen feet to the bottom of the trench.

Q. Didn't you have to go under four 40-inch water mains and a lot of sewers?

A. We had to go under seven 48-inch water mains in one place and a valve chamber besides in one intersection.

Q. Is it part of your duty to supervise the laying of pipes when a pipe is blocked?

A. Yes, sir, it is.

Q. You say each length has two blocks, one back of the hub and the other about the middle?

A. Two blocks to every length and a block to every special; a piece of cut pipe receives the same blocking as a full length would provided it is over six feet.

Q. Now, in reference to Complainant's Exhibit 330, it appears that the pipe is running in several different directions there?

A. Yes, sir.

Q. As a matter of fact, that is the junction of St. Nicholas Avenue, 116th Street and Seventh Avenue?

A. Yes, sir; three streets.

Q. And does that account for the direction of the pipes?

A. This is north, running north on St. Nicholas, that is on Seventh, and that following St. Nicholas in a general line (indicating directions of pipes on photographs).

Q. Do you remember how many sewers you went under in that whole job?

A. I could remember it more quickly by taking it by intersections we went under the first sewer at——

5920 Q. Tell somewhere near, you need not recite them?

A. Five.

Q. As a matter of fact, is it not true that this job uptown was in a wider street than most of the streets downtown?

A. Yes, sir.

Q. And that the congestion of structures under the surface was correspondingly less than downtown?

A. Yes.

Q. And if you were laying a pipe up Broadway in the lower part of the city, instead of up Broadway in the upper part of the city, the obstructions would be comparatively greater than as shown in the photograph?

Objected to as incompetent, immaterial and irrelevant.

Question allowed. Exception.

A. Very much greater down town.

By Mr. BURR:

Q. What do you mean by the "valve chamber" to which you made reference?

A. The valve chamber I spoke of was a brick chamber enclosing four blow-off valves and the blow-off connections from a sixty, two thirty-six and one forty-eight inch water main where they blow-off

into the sewer to carry away the sediment from the bottom of the main. They house their valves in a brick chamber at some particular point—I suppose they do it generally, I don't know.

Q. Do you know of any place in the lower part of New York where you have to dig lower than twenty feet?

A. Lower than twenty feet?

Q. Yes.

A. I have seen intersections or part of intersections exposed throughout the lower part of New York where I don't see how it would be possible to get in a pipe any shallower than that, and I have seen one pipe in the course of construction where I know the depth was that great.

5921 Q. That is the depth to which I understand you claim you were compelled to go at these points shown by these photographs, or some of them?

A. That is the depth, yes. In some cases it is greater than I notice.

By Mr. KIRBY:

Q. How many feet of pipe have you laid in the lower section of the city?

A. Laid none.

Q. You had charge of the laying of this pipe in the upper sections?

A. I did.

Q. You had charge of the laying of pipe in——

A. In New York, yes; supervision of it.

Q. Have you ever had charge or supervision of laying pipe in the lower section?

A. No, not particularly laying. I have had supervision of alteration work on account of the Rapid Transit subway in the lower part of the city, seen the mains laid, followed them up and inspected them.

Q. If you were obstructed by a manhole of the subway construction it would not go any lower down than was necessary to get under it, would you?

A. No.

Q. When you get to a sewer do you ever use such construction as shown in Complainant's Exhibit 328?

A. It has been used, I have never used such construction. It has been used in the city, I have seen it in the ground.

Q. You did not use any on this uptown job?

A. No, it would not have been any advantage. The points where we were forced down by sewers there were other sub-surface structures there that would have necessitated a special construction throughout, and it would be a very expensive piece of main work.

Q. Such flume work as shown in Exhibit 328 is not in itself an expensive thing, is it?

A. Yes, it is.

5922 Q. More expensive than cast iron pipe?

A. I don't know as to that. I know it is necessarily more expensive, requires more care to make and get tight.

Q. It is lighter, isn't it, and less material in it than cast iron?
A. Per running foot?
Q. Yes.
A. Very much.
Q. That would cheapen it in that regard?
A. In that respect without regard to the method of construction.

By Mr. MATHEWSON:

Q. Referring to this Complainant's Exhibit 328, and the average steel pipe, wasn't it necessary to have several steps made to get the end of this pipe to your main?
A. It was.
Q. And taking the job as a whole, isn't this very much more expensive construction than the laying of a similar amount of pipe?
A. I should consider it was very much more so.

By Mr. KIRBY:

Q. You don't know as a matter of fact?
A. I know as a matter of ordinary judgment that it must be, that the alteration where a subway roof existed necessitates a large expenditure of money, the construction of the iron top alone setting in the concrete.
Q. As for the relative cost of flume and pipe and cost therefor you never made any calculations to balance one against the other to see?
A. I have not made any calculations, no.

At 4.45 adjourned to January 22nd, 1907, at 11 A. M.

Last Exhibits:

Complainant's, 334.
State's, 000.
City's, 236.

5923 Circuit Court of the United States, Southern District of New York.

CONSOLIDATED GAS COMPANY OF NEW YORK, Complainant,

vs.

JULIUS M. MAYER, as Attorney General of the State of New York, WILLIAM TRAVIS JEROME as District Attorney of New York County; FREDERICK E. GUNNISON, JOHN C. DAVIES, and LUCIAN L. SHEDDEN, Constituting the New York State Commission of Gas and Electricity, and THE CITY OF NEW YORK, Defendants.

Before Arthur H. Masten, Special Master.

NEW YORK, *January* 22, 1907.

Met pursuant to adjournment.

Present: The Master, Mr. Mathewson, Mr. Burr, Mr. Kirby.

5924 Mr. MATHEWSON: I call attention to the fact that State's Exhibit MMM at page 1658 of the Exhibit Book has a clerical error in printing; it represents as printed, February, 1902; it should be 1905, and so appears in the original exhibit. I have a carbon copy of it right here.

Mr. BURR: I notice on page 1660 the year is given as 1902. Does that have to be corrected?

Mr. MATHEWSON: That is all right.. Mr. Edgerton compared February, 1902, with December, 1904, and February, 1905.

Mr. KIRBY: I will not have a chance to look at that now. If it is not a correction I will let you know.

WALTER R. ADDICKS, recalled as a witness in behalf of the complainant in rebuttal, testified as follows:

Direct-examination by Mr. MATHEWSON:

Q. Mr. Addicks, Mr. Edgerton presented, and there were put in evidence, three exhibits, State's Exhibit MMM, State's Exhibit NNN, and State's Exhibit OOO, pages 1658 to 1660, inclusive, of the Exhibit Book. I find that Exhibit MMM is indicated as representing 21st Street station, February, 1902, as printed. Is that an error, and what should it be?

A. It should be February, 1905, as appears in the original Exhibit MMM, of which you furnished me a copy.

Q. And generally speaking, the figures there, so far as they are tested, compare with February, 1905, do they not, and 1902?

A. Except as to some errors.

Q. Well, I mean generally?

A. Yes, sir.

Q. Now, take State's Exhibit MMM, representing February, 1905,

and I find a column headed candle power at station, average
5925 24.95 candles. Is that correct for that month?

A. It is.

Q. And gas oil used, 1,756,027 gallons?

A. That is correct.

Q. How about the amount under gas made, which appears on the exhibit at 400,007?

A. It is 400,004 in my copy.

Q. That means 400,004 thousands of cubic feet?

A. Yes.

Q. Is that amount correct which Mr. Edgerton said that he found?

A. It is incorrect.

Q. What do the books show in fact?

A. Carburetted water gas 384,604.

Q. In other words, this 400,004 includes the oil gas made at 21st Street and which is sent to the 14th Street station as well as the gas actually made at the 21st Street station and sent out from there, does it not?

A. Yes.

Q. Now, if this table were correct you should, by dividing the gas used by the number of thousands of feet produced, get the result in the final column showing the gallons per thousand of 4.57, should you not?

A. Yes.

Q. Do you get 4.57 if you divide the gas oil used as stated by Mr. Edgerton in Exhibit MMM with the gas made as stated by Mr. Edgerton in the same exhibit?

A. It would make the gas oil used 1,828,000 when the actual amount used was 1,756,000 gallons; I am leaving the small numbers out.

Q. So that the exhibit does not check?

A. It does not.

Q. Now, take State's Exhibit NNN for identification, representing the 21st Street station for December, 1904——

The WITNESS: May I say that I reversed your question; Mr. Burr will understand that instead of dividing the make into the
5926 gas oil, I multiplied the gas oil into the make, getting the number of gallons of oil. I reversed your question unintentionally.

Q. Take State's Exhibit NNN for identification representing the 21st Street station for December, 1904. I find under the column gas made in thousands 406,366; is that correct?

A. It is not.

Q. What is the amount of gas made?

A. 468,193.

Q. Corrected or uncorrected?

A. Corrected.

Q. That does not include oil gas?

A. No, sir, that is water gas.

Q. Is the average of the candle power at station, 24.83, correct?

A. Yes, sir.

Q. How about the gas oil used, 2,232,181 gallons?
A. That is correct.
Q. Is the 4.77 gallons per thousand made correct?
A. Not as appearing, as dividing the gas made into what we use, 4.77; but 4.77 as a matter of fact is correct so far as the amount used is concerned, but it would not divide out on his figures.
Q. In other words, that figure is taken by Mr. Edgerton from the books as correct as to gallons per thousand, but his figures as to gas made, which should check out, are incorrect?
A. I will say there is no explanation of how he got that figure.
Q. You cannot find any?
A. No.
Q. Take State's Exhibit OOO, page 1660.
A. I have it.
Q. Under gas made, December, 1902, appears in thousands 406,366. That is exactly the same amount as appears for the 21st Street station for December, 1904, Exhibit NNN, is it not?
A. Why, yes; I did not notice that before.
Q. Is it right, for December, 1902?
A. It is not.
Q. What is the amount for December, 1902?
A. I have the amount, 390,777 thousands.
Q. Corrected or uncorrected?
A. Corrected. The figures I have taken are corrected figures.
5927 Q. Are you able to find where for December, 1902, Mr. Edgerton could have got any 406,366?
A. I do not recall it now.
Q. Is the candle power at stations average 23.89 correct?
A. Yes.
Q. Now, as to gas oil used, Exhibit OOO, which Mr. Edgerton introduced shows an amount in December, 1902, of 19,535,338 gallons, is that correct?
A. About 10,000,000 gallons out.
Q. More than that, is it not, about 17,000,000 gallons out of the 19,000,000 gallons out?
A. Yes, 17,000,000 gallons out. I presume the error is in the——
Q. Explain if you can, how the error apparently occurred under the column gas oil used, as it appears in the exhibit?
A. I do not think it is an error of Mr. Edgerton's, I think it is an error of the typewriter. I think you will find the two 3's—between the 5 and 8 you will find two 3's instead of one, so it will read 1,953,538.
Q. That is the amount you would suppose was intended to be put in that column, is it, instead of the 19,535,328?
A. Yes, in that column only.
Q. If you will look at Exhibit OOO for a minute it would appear that on many days the company used 5 gallons, or about that per thousand feet, but on several days here, according to this exhibit they used only 3.58 gallons or 3.64 gallons. That would indicate a great discrepancy.

Q. Was there this discrepancy in fact?
A. No, sir.
Q. Why not?
A. Because Mr. Edgerton omitted to put in all the oil.
Q. What did he omit?
A. He omitted 108,543 gallons.
Q. Of what?
A. Of naphtha.

Q. Have you an exhibit here showing the amount of naphtha which should have appeared, but which was omitted in Exhibit OOO?

5928

A. I have.

Q. Now, introducing this naphtha at the proper dates, the gallons per thousand run substantially uniform for every day in the month, that is, very close to five gallons per thousand, do they not, instead of showing the great discrepancy which Exhibit OOO showed as to gallons per thousand upon the different days of the month?

A. I should think it would be very nearly the same average. There might be some slight differences as compared with the other days.

Q. Now, as a matter of fact, the gallons per thousand as stated in Exhibit OOO, average exactly five. Is that the true average, if you divide the water gas made, the true amount, as you have corrected it, into the oil used?

A. Into the amount of oil used, that Mr. Edgerton said was used?
Q. No, the amount actually used?
A. It is 5.2 and approximately 8, a shade under, I think.
Q. 5.28 gallons instead of 5?
A. Yes.

Q. Now, Mr. Addicks, have you corrected these Exhibits MMM and NNN and OOO in tables that you have, showing the whole thing in toto?

A. Yes, sir.

Q. And you have also prepared for the purposes of comparison a statement made out covering the same point for December, 1905?

A. Yes.

Mr. MATHEWSON: I will ask you to spread those on the record.

Mr. BURR: I do not know that the statement for the month of December, 1905, is properly rebuttal. Just as counsel stated, it is merely for the purpose of comparison. The corrections which he makes upon the various exhibits are of course concededly proper rebuttal, but to go into another month and make another statement for that month, in the year 1905, is not, it seems to me, strictly rebuttal. It is merely for the purposes of comparison, and that opens up another question.

5929

Mr. MATHEWSON: It opens up another question, perhaps, which has been brought out by Mr. Edgerton, who claimed that low grade oil would carry candle power just as well as high grade oil, and I propose to show by taking the three months which he presents in these exhibits, that December, 1905, that the drop in candle power

between the works and stations varies exactly as the grade of oil you use.

The MASTER: I will allow it.

By Mr. MATHEWSON:

Q. I will first ask for Exhibit MMM, for February, 1905, as it would be if corrected to the proper amount?

A. State's Exhibit MMM, if corrected to true figures, should be as follows:

5930 CONSOLIDATED GAS COMPANY.

21st Street Station. February, 1905.

	Water Gas made M.	C. P. at station.	Gas oil used.	Specific gravity.	Gallons per M.
1	15,680	25.36	69,821		4.45
2	16,091	24.76	81,007	30	5.03
3	15,886	25.10	79,397	30	5.00
4	14,095	24.85	70,793		5.02
5	10,608	25.73	48,808	29	4.60
6	15,042	25.14	68,741		4.57
7	15,486	24.48	77,789		5.02
8	15,167	24.88	67,346	29½	4.44
9	14,353	25.24	69,441		4.84
10	14,618	25.33	66,092	29	4.52
11	13,222	24.98	59,955		4.53
12	8,720	24.52	37,712	29½	4.32
13	13,156	23.84	63,055		4.79
14	16,347	25.27	76,884		4.70
15	15,443	25.05	71,113	29½	4.60
16	14,682	25.10	71,130	29½	4.84
17	14,017	24.75	62,174	29	4.43
18	12,031	24.09	65,636		5.45
19	10,523	25.09	48,953	29½	4.65
20	13,710	25.74	65,513		4.78
21	14,566	26.16	61,113		4.20
22	11,742	25.11	49,481	29½	4.21
23	15,082	24.87	38,860		4.39
24	14,029	24.58	61,090		4.35
25	11,307	24.41	47,528		4.20
26	10,339	24.69	50,318	29½	4.87
27	13,465	24.70	61,487		4.57
28	15,197	24.88	64,790	29	4.26
	384,604	24.95	1,756,027		4.57

Q. Now, have you State's Exhibit NNN?

A. I have.

Q. Containing the correct figures?

A. I have. It is as follows:

5931 CONSOLIDATED GAS COMPANY.

21st Street Station. December, 1904.

	Water Gas made M.	C. P. at station.	Gas oil used.	Specific gravity.	Gallons per M.
1	17,114	24.38	73,501	29	4.30
2	16,135	24.91	77,263		4.79
3	13,937	24.49	68,183		4.89
4	11,407	24.03	56,480	29.5	4.95
5	16,607	24.25	75,595		4.55
6	15,531	24.11	74,814	29.5	4.82
7	16,124	24.37	71,014		4.40
8	16,105	23.75	74,027		4.60
9	16,133	23.61	78,562	29.5	4.87
10	15,505	23.59	78,618		5.07
12	16,100	25.68	74,297	31	4.61
11	12,019	24.42	59,370	32	4.94
13	15,669	25.09	74,034		4.72
14	15,205	25.77	72,917	31	4.80
15	17,345	24.63	79,533	31	4.59
16	16,082	24.90	77,576		4.82
17	14,303	24.31	67,860		4.74
18	10,832	24.82	55,771	30	5.15
19	15,252	25.48	77,200		5.06
20	16,327	25.17	80,414		4.92
21	16,230	25.12	79,306	30	4.89
22	16,513	24.44	80,593		4.88
23	16,848	25.37	78,439	30	4.66
24	15,116	24.34	72,415		4.79
25	11,024	23.83	53,539		4.86
26	11,955	25.48	59,617		4.99
27	16,815	25.98	79,974	30	4.76
28	14,954	25.99	77,193		5.16
29	16,506	25.62	61,760		4.87
20	15,078	25.93	77,871	29.75	5.16
31	13,422	25.85	64,445	30	4.80
	468,193	24.83	2,232,181		4.77

5932 Q. And State's Exhibit OOO?
A. Yes, it is as follows:

CONSOLIDATED GAS COMPANY.

21st Street Station. December, 1902.

	Water Gas made M.	C. P at station.	Gas oil used.	Naptha.	Total.	Specific gravity.	Gallons per M.
1	12,640	26.45	63,418		63,118		5.02
2	12,523	26.74	63,161		63,161		5.04
3	12,991	25.68	65,806		65,806	38	5.07
4	13,847	23.60	70,135		70,135		5.07
5	13,808	23.02	71,322		71,322		5.17
6	12,356	24.44	63,011		63,011	37	5.10
7	12,062	22.30	60,861		60,861	37	5.05
8	14,229	26.04	73,311		73,311		5.15
9	14,099	24.38	71,461		71,461	37	5.07
10	13,687	27.29	70,211		70,211	37	5.13
11	13,543	26.04	71,811		71,811		5.30
12	12,418	25.49	67,561		67,561	38	5.44
13	11,996	23.75	62,461		62,461	38	5.21
14	12,184	23.51	60,571		60,571	38	4.97
15	12,610	23.09	63,111		63,111		5.00
16	13,139	24.43	61,444	4,167	65,611		5.00
17	12,520	26.23	50,787	14,753	65,540	37	5.24
18	11,809	25.87	46,302	19,273	65,575		5.55
19	12,354	24.30	110,622	14,433	125,055	38	5.14
20	11,484	23.48	41,094	16,517	57,611		5.02
21	10,945	23.45	39,836	15,000	54,836		5.01
22	13,434	23.19	50,807	13,583	64,390	37	4.79
23	13,555	25.84	63,411	7,384	70,795		5.22
24	13,300	23.55	63,602	3,433	67,035	38	5.04
25	12,313	22.97	60,683		60,683	39	4.93
26	12,801	21.96	67,215		67,215	37	5.25
27	11,531	21.66	59,949		59,949		5.12
28	10,229	22.09	54,465		54,465	37	5.32
29	11,551	21.50	59,915		59,915		5.19
30	12,272	21.44	59,529		59,529	36	4.95
31	12,547	22.35	65,665		65,665	37	5.23
	390,777	23.89	1,953,538	108,543	2,062,081		5.28

Q. And now, have you the statement for December, 1905, on the same basis?
A. I have. It is as follows:

5933 CONSOLIDATED GAS COMPANY.

21st Street Station. December, 1905.

	Water Gas made M.	C. P. at station.	Gas oil used.	Specific gravity.	Gallons per M.
1	18,163	26.72	92,364	34.8	5.09
2	15,755	26.53	74,912		4.75
3	14,226	26.44	67,786	34.4	4.76
4	19,158	26.51	91,817		4.79
5	19,372	26.56	94,532	35.	4.88
6	19,737	26.84	99,086		5.02
7	19,796	26.76	97,686		4.93
8	17,075	26.65	85,711	35.	5.02
9	15,405	26.40	75,181		4.88
10	16,094	26.00	77,589	34.8	4.82
11	17,611	26.69	80,978		4.60
12	18,889	26.63	84,177		4.46
13	19,003	26.80	81,875	34.	4.30
14	19,376	26.51	83,892		4.33
15	18,920	26.73	80,946	34.5	4.28
16	18,238	25.99	83,281		4.57
17	14,861	26.49	71,981		4.84
18	18,210	26.79	82,751	34.	4.54
19	19,739	26.75	89,462		4.53
20	19,808	26.83	88,150		4.45
21	20,608	26.35	94,103	34.3	4.57
22	20,141	26.89	90,409		4.49
23	17,758	26.75	77,545		4.37
24	14,169	25.82	67,817		4.77
25	15,379	26.45	70,663		4.59
26	18,393	26.20	82,855	34.7	4.50
27	19,641	26.58	92,469		4.71
28	18,884	26.39	84,007	34.7	4.45
29	18,699	26.55	82,757		4.43
30	16,922	26.13	65,263		4.43
31	15,009	26.15	63,313		4.22
	555,039	26.51	2,555,358		4.60

5934 Q. Now, taking these four sheets which are just spread on the record for December, 1902, December, 1904, February, 1905, and December, 1905, have you made out a table showing the gravity of the oil used in each one of those months, the candle power at the station, the candle power by the city's test, and the drop between the station average and the city test average?

A. Yes.

Q. Is that it (handing paper)?

A. Yes.

Q. I will ask you to spread this on the record.

A. It is as follows:

Year.	Gravity.	Candle power.		
		Station.	City test.	Drop.
Dec., 1902	36-38	23.89	21.80	2.09
Dec., 1904	29.5-32	24.83	21.08	3.75
Feb., 1905	29-30	24.95	20.06	4.89
Dec., 1905	34.5-35	26.51	23.39	3.12

Q. Now, taking 1902, December, the gravity of the oil was highest, was it not, from 36 to 38 gravity?

A. Yes.

Q. And the station test was how much?

A. 23.89.

Q. The city test averaged how much?

A. 87.80.

Q. And the difference between the average station test and the average city test of how many candles?

A. 2.09.

Q. The next highest grade of oil was used in December, 1905, was it not?

A. Yes.

Q. From 34.5 to 35 gravity?

A. Yes.

Q. And the station test average was what?

A. 26.51.

Q. And the city test?

A. 23.39.

Q. A drop of how many candles?

A. 3.12.

Q. Now, the third highest was in December, 1904, when the gravity ran from what?

A. 29.5 to 32.

Q. And the station test?

A. 24.83.

Q. And the city test?

A. 21.09.

5935 Q. A difference in the average of how much?

A. 3.75.

Q. The lowest grade oil in February, 1905, showed a drop between the average of the station test and the City test of how much?

A. 4.89.

Q. Now, as a matter of fact in December, 1902, to which State's Exhibit OOO relates and where you used 5.28 gallons per thousand even of the highest grade oil, from 36 to 39 degrees, was there in use the present improved Lowe apparatus, or was that the previous apparatus which was replaced?

A. Only in part. There were a large number of retorts making gas in the old fashioned way, making a blue gas and oil gas in retorts and mixing them together instead of mixing them in a carburetter, as in the Lowe type process.

Q. Was that changed after 1902?

A. Yes.

Q. When?
A. 1904.
Q. Now, let us see how that follows out. How many gallons per thousand did you use in 1902, December? 5.28 you said, I think.
A. Your question is with regard to 1902?
Q. Yes.
A. 5.28.
Q. And in 1904, December, you used an oil of lower specific gravity, running from 29½ to 32 only, and used how many gallons per thousand?
A. 4.77.
Q. About half a gallon per thousand less, is it not?
A. Yes.
Q. Was that made possible by your new apparatus?
A. Yes.
Q. Now, take February, 1905, State's Exhibit MMM, the average at that time was 4.57 gallons, a drop of .2 of a gallon below December, 1904, for each thousand feet, was it not?
A. Yes.
Q. And of a specific gravity a trifle lower than used in December, 1904?
A. That is right, 29 to 30.
5936 Q. And that was a period of 20 candle power gas?
A. Yes.
Q. Now in December, 1905, how many gallons per thousand were you using?
A. Only .03 more, 4.60 of the higher grade oil.
Q. And that is, you were using more oil and of a higher grade?
A. Yes.
Q. That was within the period of the 22 candle power gas?
A. Yes.
Q. Do you remember what sort of a month for weather December, 1905, was?
A. The warmest December in 14 or 15 years; 1891 I think was warmer than that.
Q. And what effect would that have on the amount of oil used to produce the required candle power?
A. It should tend to have the minimum quantity of oil for the given month.
Q. Taking up now, Mr. Addicks, the subject of oil, what do you estimate the requirements for oil to be for the companies whose supply is derived from the contract of November 1st, 1905, in evidence?
A. During what years?
Q. 1907 and 1908, the quantity required?
A. 107,420,460 gallons.

Mr. KIRBY: This is simply a repetition of the terms of the contract, is it not?

Mr. MATHEWSON: No, the contract does not specify how much shall be used. Of course the first year there was less oil used and required, and there was less cande power and less sale; and I am simply asking him to estimate the quantity of oil he thinks will be required in 1907 and 1908.

By Mr. KIRBY:

Q. That is the amount you estimate all the companies will
5937 require in the year 1907?

A. 1907 and 1908.

Mr. MATHEWSON: No, one year.

Mr. BURR: That is for each year?

By Mr. MATHEWSON:

Q. From when to when?

A. From one year then to the other. You can take any period you please.

Q. That is for each year?

A. Yes. I think specifically that is the calendar year from January to December. I can give it to you exact if you would like to have it.

Q. Referring to the amount actually received and used, under the contract, can you tell me how many gallons were taken under that contract for the last ten or eleven days, from December 21st to December 31st, 1906?

A. We received 4,604,020 gallons from December 21st to December 31st, inclusive, 11 days.

Q. Now, as bearing on the supply of oil required, storage capacity and other circumstances, will you state what the situation of the company's plants was as to oil within the last month?

A. December 21st we got within six hours of being out of oil at 21st Street station. It was on account of heavy fogs at that time. We had an emergency shipment come in of about 60,000 gallons which would last about fifteen hours. This oil was destined for some other point and happened to be in the river at the time close to the works.

Q. At what capacity was this 21st Street works running at that time?

A. About 20,000,000 cubic feet per day, and the works had to be slacked off, to make less gas.

Q. Was the situation saved by the clearing up of the weather?

A. It cleared off in the afternoon and we got another cargo of oil in. The cargoes were all delayed on account of fogs.

5938 Q. Is this an isolated instance or did a similar situation arise in 1905?

A. A similar situation arose in 1905.

Q. On December 20th, how much did all the consolidated plants combined have on hand in oil as to days, number of days' supply?

A. Estimated, two and a half days.

Q. As to the quantity of oil of course the greater the quantity required to produce a candle power the greater the storage capacity required?

A. Yes.

Q. So other things being equal, is it desirable to have, say, four gallons of oil that cost five cents or five gallons of oil that costs four cents, if they produce the same result?

A. Four gallons that costs five cents is preferable.

Q. There being a smaller amount to handle, a smaller amount of storage and smaller transportation?

A. Yes, sir.

Q. Do you agree with Mr. Edgerton that the specific gravity of the oil has no relation to the candle power that you can produce with it?

A. I do not. It is affected by other things.

Q. So that gas produced by a high grade oil does not carry its illuminating power any better than gas produced by low grade oil?

A. My opinion is it is apt to carry better with a higher gravity.

Q. In reference to Mr. Edgerton's suggestion, or the suggestion of several witnesses for the defense, that the company might make a contract for oil that would yield a lower average price and yet be sure of its supply, what is your view on that subject?

A. My view is that the company could not.

Q. You made the oil contract, you stated, did you not?

A. I did.

Q. Isn't the first consideration certainty of supply?

A. Absolutely.

Q. Who provides the supply and most of the storage and
5939 the transportation by rail and the harbor transportation under your present contract?

A. The contractors.

Q. That is, the Standard Oil Company?

A. In this case, yes, sir.

Q. And that relieves the company of maintaining a fleet for the transportation of oil, doesn't it?

A. It does.

Q. What about the storage capacity?

A. It enables a minimum storage to be carried on Manhattan Island.

Q. Would it mean an addition to your capital expenditure if you had to provide these facilities that are now given you?

A. It would.

Q. What would be required, if you will state, if you were to make contracts, getting your oil where you could?

A. There would be the necessity of a fleet of barges and tugboats, and to have certainly not less than three months' supply of oil.

Q. Now, evidence has been introduced here from reports of various companies showing the price that they pay for oil. Do you find any record of the grade of the oil which these companies receive in the reports?

A. I have not had access to the reports.

Q. The evidence discloses no grade as to the oil, does it?

A. Not so far as I am able to learn. I have endeavored, through Mr. Humphreys, to get those reports, but I have not succeeded in getting them so far or in getting access to the reports of the other companies up to date.

Q. You have not yet been able to get them from the Gas Commission?

A. No, sir. We were assured we could get them.

Q. You are still trying?

A. Yes.

Q. In order to illustrate the size and requirements of those companies will you make some illustration, if you have prepared one?

A. I made an illustration of the quantity of oil that we re-
5940 received in eleven days of something over four and one-half millions, and how long that oil would last the companies that were spread out on page 5014-A, introduced by the secretary of the Gas Commission. This amount of oil that came to us in eleven days would last the Brooklyn Borough Company six years and nine months, the Kings County Company three years and three months, the New York and Richmond five years five and one-quarter months, Queens Borough Gas and Electric ten years eight and one-quarter months, the Binghamton Company twenty-four years, the Mohawk Company eleven years and three months, the Newburgh Company fifteen years and nine months, the Rochester Company two years and three months, the Fulton Company fourteen years and three months.

Q. And isn't it quite a different proposition where you require such an immense amount of oil from what it would be if you required a few thousand gallons and could skirmish around the country for it?

A. It is.

Q. Now, as a matter of fact, assuming that you would require 100,000,000 gallons of oil in 1907 instead of the 107,000,000 and more to which you have referred, have you made a computation as to what in your judgment would be the expense to the company in maintaining a fleet of boats and storage facilities either in New Jersey or on Manhattan Island and a return on the capital invested per annum which would have to be added to the cost of the oil as now received, if the company were to cut loose from the present contract and skirmish for oil?

A. I have.

Mr. BURR: That is objectionable, I think, in its form. It assumes
a great many things; it assumes skirmishing for oil, for in-
5941 stance, and a lot of other things that are not, it seems to me, proper, and I do not think it is proper or fair rebuttal; it is a speculative attempt on the part of this witness to prognosticate what might occur in the years 1907 and 1908. Now, as a matter of fact, there might be a great fall in the price of oil that year, and it is a question, and has been a question throughout this whole case, whether by competition, by giving an order for a small part of the oil that the company requires to one company and another part to another company, the Consolidated could not get better prices.

Mr. MATHEWSON: We will meet that a little later in this testimony. If we got all the oil in the country outside of the Standard Oil Company it wouldn't be enough.

Mr. BURR: And some companies might be willing to deliver the oil in their own barges.

Mr. MATHEWSON: There are none.

Mr. BURR: Well, that is your statement.

Mr. MATHEWSON: Well, we will prove it later.

Mr. KIRBY: We will have to bring witnesses to rebut a good many

of these estimates, I suppose, as to whether or not some other company would build a fleet of barges itself, and pay the storage or not, if they had a contract with the Consolidated.

Mr. BURR: I suppose that we have traversed a good part of the ground already. Mr. Addicks, if I remember, testified he was obliged to make this contract with the Standard Oil because they could not make a contract for so large an amount of oil with the other companies, and he testified that was the best price available, that they were completely at the mercy of the Standard Oil.

5942 That is the fact, according to their contention. We showed by comparative data that other companies in this State and other States along the tide-water received oil for a less amount. They may explain the difference, as Mr. Addicks has tried to explain, that they may not use the same grade of oil, or that for some other reason there is a special exemption as to them in price, but here we are going into the realm of speculation as to what will happen in 1907.

The MASTER: The question has been answered. Read the question, Mr. Stenographer.

The question is now read.

The MASTER: I will allow it.

The State and City except.

Q. You state, in the first place, you would require a storage capacity of ninety days, did you, or three months, to be safe?

A. Yes.

Q. At present where is the storage capacity for the oil which the company receives?

A. Located at the various stations in the borough where the oil is used.

Q. You mean so far as the company is concerned, in the City of New York?

A. Yes.

Q. Well, that storage is limited, as you have stated?

A. Yes.

Q. Where are the storage tanks from which the oil comes which you use?

A. A good deal of it is at Bayonne. That is backed up further by pipe lines.

Q. Do you know of any other storage tanks in the vicinity of New York than the Standard Oil supply—which is ample, isn't it?

A. I do.

Q. What?

A. The Standard Oil is ample to supply us, as shown by the actual supply for years. There are other storage tanks in the vicinity of New York.

5943 Q. Of large capacity?

A. My information is that it is about five million gallons total.

Q. In other words, that is about what you receive in eleven days?

A. Yes.

Q. Would you feel safe to rely on any such storage capacity as that?

A. I would not.

Q. Now, will you give your statement as to what your computation is?

A. With the tide-water storage per gallon, in cents, .53303 cents per gallon.

Q. A little over half a cent a gallon?

A. Yes, sir. With Manhattan storage .6484.

Q. And in making this computation what rate of return did you assume on the capital which would have to be invested?

A. The same as the Gas Commission quoted and Mr. Hughes used in the Stevens' Investigating Committee, 8 per cent.

Q. Now, we will take some of the oil which was to be delivered by these independent refiners who testified on the other side. What did Mr. Emory testify would be the cost of Pennsylvania oil at Jersey City?

A. On page 4827, that 34 gravity oil was quoted at 3.25 cents per gallon, Bradford, plus 1.05 cents for freight, making 4.30 cents per gallon.

Q. Now, that means, as he testified, on the other side of the river?

A. It does.

Q. And that does not include storage, does it, or transportation across the river?

A. No. I would qualify, so far as calling attention to their testimony is concerned, that I think one of the Emorys (junior) stated that the freight included a storage, but not the putting into a tank for use.

Q. Oh, yes, I understand? But not storage in the sense of storage for a gas company in large supplies; and railroad freight rates as given do not include any storage whatever nor do they include the use of cars.

A. The shipper must supply his own cars.

5944 Q. Supposing we get it to Jersey City at 4.3 cents per gallon for 34 degree Baume oil?

A. Yes, sir.

Q. If you add to that the expense per gallon which you have computed, assuming that you have storage in New Jersey where it would be cheaper .533, what would it make the total cost of the oil to the company?

A. Under the date of December 22, 1906, 4.833.

Q. What is the average cost of the oil which you now use?

A. 4.524.

Q. That would cost more than you now pay, would it, on that computation?

A. Yes.

Q. Did Mr. Emory show what the capacity of his works was, or did you compute it?

A. Yes, based on the quantity of crude that they handled and on the percentage obtained, the quantity of 34 gravity oil appears to be 10,080 gallons per day, and in addition to that a 40-degree oil amounting to 1,008 gallons obtained from the oil tar by distillation.

Q. That would be how much?

A. About 11,000 gallons, roughly.

Q. A day?
A. A day.
Q. That would be insignificant in the requirements of the Consolidated Gas Company, wouldn't it, and other gas companies in Manhattan?
A. Well, that would be about 121,000 in eleven days where we receive over four million and a half gallons.
Q. As to the 73 Able, as it is called, of 44½ gravity oil, which it was testified was known as export oil and which it was said was quoted at 4.4 cent in New York, do you understand that that oil can be obtained for domestic use at that price in any quantity?
A. From information and belief, no.
Q. Have you made inquiries to find out?
A. Yes.
Q. It is known as export oil, isn't it?
A. Well, it is oil for export. 73 Able is not used in this
5945 country for illuminating purposes, being of a low fire test—and when I say the country I mean in the City of New York—I don't know whether it is used in the country or not. My information is that it is not used in the City of New York.
Q. What is the fire test?
A. Open fire test of 112. 73 Able represents the flashing point with the particular cup which is used for testing the oil. It is a parliamentary standard.
Q. Would it, in your judgment, be a proper thing if you could get it in New York, or a safe thing, to have an oil of that inflammable character stored in tanks to the extent that the company would require it?
A. Certainly not. You are referring now to the three months' supply?
Q. Yes.
A. Certainly not.
Q. Would you expect that the city would consent to the storing of it here?
A. No, sir.
Q. As a matter of fact, what was the quotation for export oil of this character, known as 73 Able, when you made the contract of November 1, 1905?
A. 4.80.
Q. Not 4.40?
A. No, sir.
Q. Isn't it 4.40, including from that time to this?
A. Yes, sir.
Q. That is the average for the whole time?
A. I have it for twelve months as 4.591. That does not include the high 4.80.
Q. No. Well, this quotation of 4.8 cents, or 4.4 cents, is from the Jersey side, isn't it?
A. It is.
Q. And if you could get it in New York, and if it could be got and if the city would allow its use, it would cost, adding the additional

expense per gallon which you have described, .533 or .6488 of a cent, how much?

A. As of December 2nd, 1906, based on 4.40, the figure used heretofore in the case, the tide-water storage would be 4.933; Manhattan, 5.048.

Q. It isn't worth while, perhaps, to say much about Texas
5946 oil. Mr. Emory's testimony is that it "petered" out, couldn't be had; but Mr. Chamberlain of Ohio appeared here and testified in reference to oil which was not Pennsylvania oil. What was the testimony as to the cost of 34 degree oil of that character?

A. At page 4505 he testified that the price of oil in Findlay was 3 cents; also testified that the freight was a little over 1¼ cents a gallon, based on 22 cents per one hundred pounds; 22 cents per one hundred pounds is 1.56 cents per gallon, so that the price would be 4.56 cents per gallon, and not 4¼ as he stated, for 34 gravity oil. I would like to add, however, that the 22 cents per one hundred pounds of freight is incorrect. It was 21.5, which would make a very slight difference. He probably spoke from memory.

Q. Findlay is on the Pennsylvania Railroad, isn't it?

A. They have connections. I have gotten a freight rate from the Pennsylvania Railroad.

Q. The freight rate specified is to the other side of the harbor, Jersey City?

A. Yes, sir.

Q. And to that 4.56 you would have to add to give the oil to the Company in Manhattan—the transportation and whatever storage was required which you stated would be .53 in one case and .64 in another?

A. Yes, and in addition to that you would have to supply the tank cars if the shipper did not supply the tank cars for 3 cents.

Q. Assuming all these things, how would the cost of that oil compare with the cost of the oil you now get?

A. Well, 4.56 is higher than our average of 4.52, even in Jersey, and conceding the statement that 28 degree oil was worth ¼ cent less than 34 degree, taking ¼c off 4.56 leaves about 4.30. And the price of 28 degree oil is 4.28 in Manhattan and not Jersey, making without any other computation the 28 degree gravity oil higher than we are paying here.

5947 Q. Without storage or transportation on the Jersey side?

A. Yes, sir.

Q. And if those were to be included, what would be the result, larger or smaller?

A. It would be additional by upwards of—well, the figures I gave a little over .5 or a little over .6 of a cent respectively, for the two kinds of storage. I want to say that these figures you know are based on about December, 1906. Mr. Chamberlain's statement was that he sold oil—the last he sold—it is doubtful as to whether his price of three cents was in December or might have been six months away, but the Emory figure was as of December, 1906, as I read the testimony.

Q. Well, taking the cost of the export oil as it was on December 31, 1905, the day before you made the contract with the Standard

Oil Company, it would produce, wouldn't it, for 34 degree Bradford oil testified by Mr. Emory at 5.18 cents a gallon with tide-water storage, or 5.29 cents a gallon with Manhattan storage?

A. That is right. Increasing his figure of 4.30 at tide-water proportionately to the difference between 73 Able at the time he testified and the 1st of November, 1905.

Q. And th- 73 Able or export oil, if it could have been obtained in quantity, would have cost how much?

A. May I finish that answer?

Q. Yes.

A. My figure is, it would cost 4.64 in Jersey.

Q. And the 73 Able or export oil, it could have been obtained in quantity would have cost how much?

A. 5.33, tide-water; 5.44 with Manhattan storage, leaving out decimals.

Q. Let me ask you if these figures which have been produced by the defendant's witnesses and your consideration of them since, have modified your view as to the impossibility of getting an adequate and pure supply from any other source than the Standard Oil
5948 Company?

A. It has not, sir; it has strengthened it.

Q. Will you elaborate a little on that, and indicate why it cannot be obtained from independent sources to advantage.

A. In the first place you ask me the question in regard to 34 degree oil from the Emory people at Bradford—I should further say that the apparent monthly capacity for 73 Able which they sell entirely at Philadelphia, was 525,000 gallons based on their monthly capacity of handling crude oil, and based on their percentage of 73 Able according to their testimony in one gallon of crude. They stated, however, they sold 750,000 gallons in one month. If so it must have been the manufactured product plus storage. That does not indicate that the Emorys could furnish any substantial amount of 73 Able oil for our use any more than 34 gravity. Mr. Chamberlain does not indicate he had any 34 or 28 gravity oil, but said he would not make any statement as to how much he could sell. In order to determine definitely how the situation stood throughout the United States, I consulted Bulletin 57, Census of Manufacture, 1905, which on page 43 states that the crude petroleum refined was 66,982,862 barrels of crude, of 42 gallons each. At page 8 of Commissioner Garfield's report to the President, dated May 2, 1906, there he states the independent refiners' manufacture of refined would be 11.54 per cent. of illuminating oil, and other oils in about the same proportion.

By Mr. BURR:

Q. Have you got that report here?

A. I have, sir. Multiplying 66,982,862 barrels by .1154 gives 7,730,822 barrels of 42 gallons to be manufactured by the independent refiners. This is equivalent by my computation to 324,-
5949 694,524 gallons of crude. On page 4808 of the testimony Mr. Delavan Emory, as of December 3, stated that he had ob-

tained twenty per cent. of the 34 to 36 gas oil from 100 gallons of crude, that he obtained one per cent. additional from the tar (see page 4809), and, on the same page, that he obtained 35 per cent. of 73 Able, 21 per cent. of 324,694,524 gallons is equal to 68,185,850 gallons, assumed to be 34 degree Baume gas oil, assuming that every gallon of oil manufactured in the whole United States would yield the exact quantity of this particular gravity that the given quality of Pennsylvania crude yields, which is less than the amount of oil required by the Consolidated Gas Company substantially, by two-thirds, if we could obtain every gallon of it as computed.

By Mr. MATHEWSON:

Q. By two thirds?

A. Less by one-third.

Q. That is, it would be less by one-third if you could get that same result from all the oil in the United States and if you could get every gallon of it here in the City of New York?

A. Yes, sir. Taking, however, the 35 per cent. into the same quantities we would apparently have 113,643,083 gallons of 73 Able, which would be, you might say, just sufficient for our wants if we could get every gallon of it here and at a price.

Q. And if you could get the Able for domestic use instead of for export?

A. Yes, without disturbing the export market.

Q. Did you read the testimony of Mr. Emory that that was quoted for export at the figures given at less than the cost of production?

A. I did.

Q. And have you any reason to suppose that the independent refiners would put it here to you at less than the cost of production?

A. I have no information except general judgment that
5950 we would not be apt to obtain it.

Q. Now, in addition to the consideration that you have advanced, the contract with the Standard Oil Company contains a stipulation of their insertion that they would give you this oil at the price stated, the stipulation being that they should furnish to you all the oil that you required, doesn't it?

A. That is my memory of it, yes, sir.

Q. Have you any information that you could get the oil which you required from them at the present price in the absence of such a stipulation as that, to take all you required?

A. That is a stipulation which they insisted on in making a price. Unquestionably the price would be higher if such a stipulation was not there.

Q. And if you could get any amount of oil from the independents would it not be necessary in your judgment to get substantially all your oil from the Standard Oil Company?

A. Yes, unquestionably.

Q. So that if they raised the price by the omission of the present stipulation to which I have called your attention it would be raising the price on the great bulk of the oil you would have to use anyway?

A. My judgment is the oil would certainly cost us more than it does under present conditions.

Q. Is this stipulation one that is inserted in other contracts with you also or in other contracts generally with gas companies, if you happen to know?

A. Well, it is familiar, the provision having seen a number of contracts.

Q. Now, in regard to the price made by other companies for oil, is it possible without knowing a great deal more than the testimony discloses, to make any comparison between their prices and the price of oil that the Consolidated pays—any intelligent comparison that would be valuable in this investigation, in your judgment?

5951 A. Only the comparison that the relation of so many cents bears to so many cents, but that would have no relation to the gas business.

Q. In other words, where oil is quoted at 3½ cents a gallon and it does not appear whether it is 23 degree oil, or whether it is drainings, is it possible to determine its value as compared with 34 degree homogeneous oil costing something over 4 cents?

A. Well, to my mind, it would not.

Q. Referring to the comparisons relating to oil used by the various companies, will you state some of the factors which are involved and which would be essential for comparison?

A. I have enumerated a number here:

First. Is the candle power furnished as stated?

Second. Whether the candle power is taken on a bar photometer or whether on a Lowe jet photometer, or a Jones jet photometer, or a Knox jet photometer, which is similar to the Jones? If taken on a bar photometer, whether the results all corrected for temperature and pressure of atmosphere?

Third. Whether the temperature of the photometer room is normal?

Fourth. Whether the candle power is determined at the station or over a mile from the works?

Fifth. Whether the make of gas is corrected for temperature of the gas passing through the station meter, and if so, how such temperatures were obtained and the number and nature of the readings.

Sixth. Whether results are figured on the make corrected or uncorrected, or on the sales.

Seventh. The percentage of unaccounted-for gas.

Eighth. Are the oil figures based on small supply tank measurements, or on oil meter measurements, or oil storage tank measurements, or on gallons of oil that are paid for? I might say

5952 you may find in some of Mr. Edgerton's figures where he gave some figures of so many gallons lost.

Ninth. The gravity of oil has a bearing which depends somewhat on the atmospheric temperature; in other words, upon whether the oil which is used produces a fixed gas at all normal temperatures and pressures met with in the given locality.

Tenth. A gravity oil which is obtained by every heavy tar products mixed with light gasolene products must give different results from

a homogeneous oil which consists of constituents that by their closer relationship by gravity are perhaps more easily heated are acted upon more similarly by the same temperature, such temperatures as are met with in gas manufacture.

Eleventh. The inspection by sworn inspectors by a public authority, at least a mile from the works, is an influence not to be neglected.

Twelfth. The frequency of such inspections is of importance.

Thirteenth. The penalty for violation, particularly when it is grossly excessive, is of vital importance, since the company must maintain such a safety margin that under no circumstances can the test fall below the standard.

These are some of the influences that relate as to oil and candle power. I have no doubt there are many others that I have not mentioned.

Q. Up the State, if I understood Mr. Emory correctly, there are sections where oil is produced. In other words, Pennsylvania oil, he testified, comes from Pennsylvania and some part of New York State, and a few places in the southeastern part of Ohio. Would not the proximity of the oil wells influence the price of any grade of oil which might be used by a company near those oil wells in New York State?

A. They might.

5953 Mr. BURR: That is purely speculative. He has no knowledge of the working of the mind of the Standard Oil people or other oil producers.

The MASTER: I do not think I would dwell on that aspect of it, Mr. Mathewson, except in argument.

Mr. MATHEWSON: No, I do not propose to. I merely wish to show that some of these companies were operating in a region where oil is produced.

Mr. BURR: The Standard Oil Company, according to your own statement, is evidently taking advantage of your situation to get all that it possibly can.

Mr. MATHEWSON: I think that is according to your statement. I have not made any statement I think on the subject, except to answer yours.

The WITNESS: I think Mr. Chamberlain showed that his sales were at short distances from wells and low freight amounts and the price of oil was less in that case than it would be in our case. He expressly stated it in cents per gallon.

Q. In addition to what you have stated here, must you not take into consideration the distance from the oil fields, and freight and things of that sort?

A. That should have a material bearing, but the long haul clause might possibly have a bearing as to the price at two places which were quite far distant from a single place.

Q. Doctor Marks made certain comparison of the prices of oil in New York cities, saying he got his information from Brown's Directory, and he gave only a few cities whose average, I think, was 3.65 cents per gallon, wasn't it?

A. I don't recall his figures. That sounds familiar.

Q. Did you find he had omitted a great many towns mentioned in Brown's Directory?

5954 A. I made some notations also from Brown's Directory in the absence of being able to get the information from the Gas Commission.

Q. Will you supply what you got from the same?

A. Yes; Cooperstown, Fort Plain, Granville, Huntington, Patchogue, Port Henry, Port Jervis, Sag Harbor, Saratoga, Suffern and Watertown varied from 4.12 to 7 cents a gallon. Now, dividing the number of towns by the price; it is not multiplying the make and the use of oil and dividing either in that way. The average price of twenty-six companies in 1905, which included all of Mr. Marks' companies, was 4.25 cents per gallon, as against the Consolidated 4.08 cents per gallon in that same year.

Q. And you don't know whether that 4.25 cents per gallon represented oil of 23 degrees gravity or some other gravity?

A. I know nothing about it whatever, except those figures.

Q. As a matter of fact, what is the truth as to the candle power maintained up the State as compared with New York City, according to your information?

A. I had those figures in my mind exactly, but I do not recall now.

Q. More or less?

A. I cannot recall definitely. My impression is it was less up the State, but then the question of where they tested their gas and all the considerations I gave you would make it idle, it seems to me, to make a comparison.

Q. I agree with you. There were four small companies mentioned as operating within the limits of the Greater City of New York: The Brooklyn Borough, Kings County, New York and Richmond, and the Queens Borough Gas and Electric Company. Have you made such investigations as you could in reference to the oil used by them and the result?

A. I have.

Q. Well, take the Brooklyn Borough.

5955 A. In the first place I found that Brooklyn Borough is not tested by the city for candle power as yet. It is a low gravity oil they are using, no gravity is specified, it comes from the Long Island Refinery. According to the report, page 5014-A, that the secretary of the Gas Commission put in, calculated by me, it gives the make and also gives the gallons of oil, showing 5.61 gallons per thousand. They are not using quite that, I think, now. I think it is nearer 5.52.

Q. As against your use of 4.6?

A. Dependent on whether ours is corrected or uncorrected. Uncorrected in one of our works would be as low as 4.27.

Q. And you don't know whether they are maintaining their twenty-two candle power in the absence of inspection there or not, do you?

A. I do not know that they are not. The price of oil to them

has been increased over the price that was given of 3¼ cents, I think, to 3.625, an increase of 20 per cent. This oil would be utterly unacceptable to the Consolidated Gas Company. I might add on the question of oil, if you have an oil that drops in candle power, I mean that condenses—you will find that condensation throughout your whole system right up to the burner very frequently, and particularly so in the meters, so that if you have a grade of oil of that description it is not only the question of what the oil costs but irrespective of any inspection by an authority it would be objectionable because of maintenance of the plant outside.

Q. Does that company use any great amount of oil as compared with the Consolidated Gas Company, or don't you know?

A. They only use 670,000 gallons per year, and, as I stated before, our eleven days' supply would last them six years and nine months.

5956 Q. Take the Kings County Company——

Q. Now, take the Kings County Company. The Kings County Company uses in the year how much?

A. They use 1,395,488 gallons, by the testimony heretofore introduced. They are tested by the city; the tests were commenced on August 6th——

Q. That eleven days' supply would last the Kings County Company three years and three months you testified, is that right?

A. Yes, sir. The tests of their gas began on August 6th, 1906, and they have been below the standard of 22 candle since then for that part of August fifteen times, or at the rate of 17.61 for the full month; for September 5 times, for October 5 times; for November 8 times; for December 8 times; a total of 41 times, and allowing for the full month of August, 43.61 times, which would be an average of 8.72 times monthly. If they maintained that average for twelve months it amounts in fines at the customary rate of a thousand dollars if they were required to make 22 candle power gas, to $104,640, which divided into the amount of oil used represents 7½ cents a gallon on fines, irrespective of the amount they pay for oil.

Mr. KIRBY: That is all very interesting, but I hardly think it is relevant.

Mr. MATHEWSON: I think it is pretty relevant, if you undertake to proceed on that theory.

The WITNESS: The price of oil was 3.125 cents which made 10/625 cents a gallon as the cost of oil under those conditions. I find that this oil is a Texas product of low specific gravity and they stated that when it was cold they sent the candle power as high as possible.

Q. Well, that is the Texas oil that you refer to that has petered out and could not be got any way, Mr. Emory says, in large quantities?

5957 A. Yes. This, I understand, is from the Gulf Refining Company, its refinery is in Texas at Port Arthur. This information I obtained from page 58 of the Garfield Report in May, 1906. They also had tanks at Beverley, as well as at Bayonne.

Q. Is this the company which you said, according to your infor-

mation, had a total storage capacity in Bayonne or Jersey City of only five million gallons?

A. Yes, sir. The division I understand to be 1,750,000 gallons of gas oil and the rest were refined and fuel oils.

Q. Considering your knowledge of that oil and the results as to candle power, aside from the fact that it could not be got in large quantities, would you consider it wise for the Consolidated Gas Company to purchase it even at the price specified for this other company?

A. My information confirms my judgment heretofore, that I should not recommend the Consolidated Gas Company under any circumstances to purchase that oil, even if the oil was available.

Q. Take the New York and Richmond Company——.

A. Pardon me, I said under any circumstances I mean these circumstances. The New York & Richmond Company, I also consulted the city tests, and I find that they were below 20 candle power.

Q. Well, the tests did not begin there until the 20th of April, did they?

A. That is correct. They were up to candle power in July, and in August they had one failure, September 2, October 1, November 1 and December 9.

Q. How many times in the six months?

A. Fourteen times for the six months, which is at the rate of 28 times a year, which at the customary thousand dollar fine would be $28,000. Dividing that by the number of gallons, 832,405 would represent 3.364 cents on the price of oil. Adding the actual
5958 price as stated in the testimony, 2.651 makes a total of 6.15 per gallon. My information is that in that case there is no gravity clause, that they obtain what they can, that it is from residual products and heavy material, and they are using now in excess of six gallons a thousand and have also abandoned the use of that oil, and are now obtaining *the* a lighter gravity oil.

Mr. BURR: This is objectionable, of course, the greater part of it, as being merely hearsay, and then again as being entirely outside the widest scope of rebuttal. It is a refinement of calculation that Mr. Addicks has indulged in that has been undoubtedly of great interest to counsel and to himself, but it does not affect the main issue here at all. We might as well assume that they would correct their methods if their methods were not proper in April or in August, and that if for the balance of the year they would be correct, and that they would not have this dropping of the candle power that they had before. It is all a mere matter of con*mu*ption and speculation and is not a rebuttal.

Mr. MATHEWSON: These are the companies which you yourselves cited, and it certainly shows that the oil they are using is not maintaining their candle power, and as to its being hearsay, it is information derived—and I do not think it becomes counsel to be very technical in that regard, in view of the way in which Dr. Marks and Prof. Bemis presented their information, and inquiries of Mr. Richards of the Boston Gas Company, or Mr. Schaff of the Commission,

and asking the secretary or treasurer of the Cleveland Company what they paid for oil, in other words, general information.

5959 Mr. BURR: There is another element that enters into this whole matter, that we cannot diagnose just here, which is, the human element, the man running the works, whether they are run economically or not, or whether the proper use was made of the oil or not, and unless you have that, you cannot make any definite finding on the result of these speculations.

The MASTER: Do not discuss it further, gentlemen. I will allow the testimony.

Mr. BURR: Exception.

Q. Now, the last of these is the Queensborough Gas Company. Do you know when the candle power tests began in that section?

A. October 22, 1906.

Mr. BURR: My objection lies to all this testimony, Mr. Mathewson.

The MASTER: Yes.

Q. What is your information as to the gallons of oil used to produce the candle power, say, in December?

A. In December it was 6.51, in October 5.27 and November 5.76.

Q. They did not begin the tests until October 22, 1906?

A. No, and it is shown in the statement on page 5014, my calculation is they were using last year about five gallons only.

The MASTER: Is my recollection right, that reference was made here, in the course of the defendants' case, to some of these candle tests of Professor Love, or some other candle tests on file in the City department, without making formal proof of them here?

Mr. MATHEWSON: Yes.

Mr. BURR: We got the candle tests from the books of the

5960 Consolidated Gas Company themselves.

Mr. MATHEWSON: They are available, of course, and are public records, and the public record can be produced if it is considered necessary, but I suppose it is hardly necessary.

The MASTER: In so far as Mr. Burr's objection goes to the question of competency and that this is hearsay, there may be something in it, unless the fact that the witnesses on the other side used similar sources of information, and they were not put to strict proof.

Mr. MATHEWSON: They did, undoubtedly.

Mr. KIRBY: We used similar sources of information in that; instead of bringing down the City records or Professor Love to testify that the statements in the City records were in fact the results of his tests, we referred to them and gave the tests as purported to be made by him.

Mr. MATHEWSON: Yes.

Mr. KIRBY: So far as saying whether or not this superintendent reported that he had given up using an oil for which the contract was in existence at the time we had our testimony placed upon the record, why we never had a thought, nor did we ever try to put such clearly hearsay testimony.

Mr. MATHEWSON: You were not here during most of the time——

Mr. KIRBY: I have been here since August 18th.

Mr. MATHEWSON: Testimony was put in freely by Dr. Marks and Prof. Bemis, and over my objection the Master stated it was an equity case and he would accept it for what it is worth.

Mr. BURR: I am not objecting to that so much, Mr. Mathewson, as to the tests of the City; any document you find or
5961 state as being the result of the official tests of the City, that is one thing, but when Mr. Addicks testifies that he is informed that they only use so much oil and that so and so is going to be done, that is another matter, and I think that is clearly outside the purview of the case.

The MASTER: I think that is true. I think that should be eliminated. I think it is proper rebuttal for him to take the same sources, the City tests, that you did, and to show where they would land in the case of these companies you referred to in the course of your defense, but he ought not to interject anything in there which is purely hearsay in the sense of information from officials.

Mr. MATHEWSON: May I ask whether we are to be excluded now from presenting information which the witness has obtained in the same manner as Mr. Bemis and Dr. Marks obtained their information, inquiries of the officials of companies and investigations? It is utterly impossible to bring the whole nation here, and if you will recall it was admitted for what it was worth over my objection.

The MASTER: Yes, it was in some sporadic cases, but, of course, the question of whether an elaborate series of calculation based solely on that kind of information should be admitted may be another thing. I am disposed to allow it, as I did the other, for what it may be worth up to a certain amount.

Q. I will ask you——

The WITNESS: May I say a word?

Q. Yes.

A. These calculations, Mr. Master, are not based on anything that was told me; they are based on the City tests and based
5962 on the amount of oil that was put right in the case here on the other side on page 5014.

The MASTER: I so understood that it was the City tests you were testifying about.

The WITNESS: Yes, sir; but the amount of oil is already testified about by the secretary of the Gas Commission.

Mr. KIRBY: I do not object to any deductions made upon that testimony, nor have I objected——

Mr. MATHEWSON: And you do not ask us to bring the City test books here which are open to your inspection?

Mr. KIRBY: No, no more than you have asked us to bring those books here; but so far as the other statements are concerned, the statements for what it is worth, we should have the sources from which Mr. Addicks got his information.

The MASTER: We will go on, and if there is any objection to be made it may be more specific.

Q. You know this Queens Borough Company consumes a very small amount of oil?

A. It is only 421,000 gallons used according to page 5014A.

At 1:05 P. M. adjourned until 2:20 P. M.

5963 After Recess.

WALTER ADDICKS resumed.

By Mr. MATHEWSON:

Q. The Queens Borough Gas & Electric Company uses what kind of oil, if you know?

A. Texas Distillate from the Gulf Refining Company.

Q. The same oil as one of these other companies you mentioned?

A. The same as the Kings County, at least I so understand it is the same oil.

Q. Have you the contract between the Queens Borough Gas Company and this Guffey Oil Company?

A. I have (producing paper).

Q. Is this the original contract which you produce?

A. Yes, sir. It confirms the price of oil as compared with——

Q. The time of this contract is between April, 1905, and April, 1906, is it?

A. Yes.

Q. And has it a provision that the liability of the first party, that is, the Gulf Refining Company, of Port Arthur, Texas, ceases when a shipment is delivered to the railroad company?

A. Yes, it does.

Mr. BURR: I object to that as irrelevant, incompetent and immaterial. I do not see what bearing it can have.

Mr. MATHEWSON: You have shown they are paying so much for oil, and I am showing the terms under which they get it, and the contract.

Mr. KIRBY: The contract itself would be the best evidence.

Mr. MATHEWSON: I offer the contract in evidence.

Mr. KIRBY: I object to the contract as irrelevant and incompetent and not proper rebuttal.

Mr. BURR: I also join in that objection.

The MASTER: I will allow it.

5964 Mr. BURR: Exception.

Mr. KIRBY: Exception.

(Paper received in evidence and marked Complainant's Exhibit 335.)

Mr. MATHEWSON: I suppose there will be no objection to substituting a copy, as we have of the other papers.

Mr. KIRBY: Not as far as I am concerned.

Mr. MATHEWSON: I call attention to the further provision:

"In case of strike, fire, failure of railway or vessel service, as public or private carriers, or any unavoidable act of God, or Providential cause happening to either party of the contract, the suffering party may, at its or their option, suspend terms and conditions of this contract for a reasonable period, and no liability for damages shall attach against either party on account thereof."

Q. Mr. Addicks, as the responsible executive officer of the Consolidated Gas Company, would you consider the making of a con-

tract with any company having those provisions, for the Consolidated Gas Company?

A. No, sir, I should not.

Mr. BURR: Objected to as incompetent, irrelevant and immaterial.

The MASTER: It seems to me that is open to objection. It is a matter of argument. I am capable of drawing that conclusion from facts, if it is warranted.

Mr. BURR: I move that the answer be stricken out.

The MASTER: If you regard it as of sufficient importance we will strike it out.

Q. Now, the Standard Oil Company has a pipe line to Bayonne, has it not?

A. Yes, sir.

5965 Q. So that it is independent of railway transportation?

A. Yes, sir.

Q. Do you know of any other company that has pipe lines to New York harbor?

A. I do not.

Q. Reference was made to Williamsport oil, the price of oil to the Williamsport Gas Co., 3.375 cents. Have you any information as to the gravity of that oil, whether it was below or above 28?

A. The information was that it was about 26, but no gravity, I understand, was specified in the contract.

Q. If it be that, 3.375, what is the freight to Jersey City, per gallon?

A. 15 cents a hundred pounds.

Q. How much a gallon does that make?

A. I approximate it at 1 cent a gallon.

Q. That would make a total at Jersey City of 4.375 on the Williamsport basis, would it not?

A. Yes. Heretofore I gave an exact figure for I think 22—I could figure it out exactly.

Q. Well, it is about that, is it not?

A. Yes.

Q. In other words, would it be more or less than we are paying in New York City for our 28 degree oil?

A. It would be more. That was in the evidence, Mr. Mathewson, the 3.375. I am simply adding the freight.

Q. Testimony was given by Mr. Bemis I think in reference to Lowell, Massachusetts, and the oil which was used there, and he made some observations as to information that he derived. Do you know or have you obtained information as to the candle power that that oil produces per gallon?

A. The information is that it is about 4½ candle power to the gallon of oil.

Q. How much does the Consolidated Gas Company get from its oil in candle power?

A. Uncorrected, with uncorrected gas, from 5.73 to 5.98 in 1905. The corrected would be from 5.42 to 5.74.

Q. In reference to Lowell and the other Massachusetts cities, what is the standard fixed by law for candle power?

5966 A. 16 candle power, and an examination not oftener than once a week, but based on the number of millions of feet sold. The exact amount I do not recollect. And the penalty of one hundred dollars for three successive violations, and no penalty if violation should be twice in succession.

Q. Do you happen to know the gravity of the oil at all?

A. No, I do not recall. I thought I knew, but——

Q. Considering the candle power required and the meagreness of the tests and penalty, what would you say as to the requirement as compared with a city like New York which requires 22 candle power? Would it require a higher or lower gravity of oil in Massachusetts to maintain the same candle power?

A. In my judgment it is very much less important, the question of gravity.

Q. You testified that you were consulting engineer for the Boston companies and chief engineer for some of them, too?

A. Yes. I was chief engineer of all but one, I think.

Q. And Mr. Bemis has testified in reference to the price paid for oil in Boston, and information that he obtained from the officers of the Boston Consolidated Company. What was your information obtained from the same sources in reference to the character of that contract? Does it call for any specified gravity of oil?

A. It either called for no limitation of gravity or a gravity between the limits of 28 and 34; I cannot recall now which that was, but it enabled the contractor furnishing the oil to furnish oil at 28 gravity so far as the contract shows.

Q. The legal requirement of candle power is what?

A. The same as in Lowell, 16 candle, with a penalty for three violations to maintain candle power, but the tests there are

5967 certainly once a week, because the quantity of gas made is such that the inspectors test every week.

Q. And what is your information as to the satisfactoriness of the oil that they are using?

A. Their chief engineer told me they are having a great deal of difficulty with his oil.

Q. Even to maintain the candle power required?

A. To maintain sufficient candle power to enrich his coal gas——

Mr. KIRBY: I object to all these answers. "The chief engineer told me"——

Mr. MATHEWSON: Your own witness, Prof. Bemis, has produced a statement from Mr. Richards, and said Mr. Richards told him——

Mr. BURR: We presented it in the form of a letter.

Mr. MATHEWSON: Is a letter stating such a fact any more proof than an oral statement? Not a particle.

Mr. BURR: We presented a written document from the Commissioners of Gas and Electricity in Massachusetts, and a letter from the president of this Consolidated Gas Company in Boston, himself. Mr. Addicks says he may have told him a number of things. I do not think it is proper.

Mr. MATHEWSON: The president may have told Mr. Bemis a vast number of things. I do not think you can put in such informaton as that and exclude us from the same sources.

Q. As a matter of fact, Mr. Addicks, do you know whether the gas of the Consolidated Gas Company of Boston is coke oven gas to a considerable extent?

A. I do.

Mr. KIRBY: I object to this as improper rebuttal.

5968 Q. How much is?

Mr. KIRBY: I object.

The MASTER: I will allow it.

Mr. KIRBY: I except.

Mr. BURR: I object to it also and take an exception.

Q. I do not care for the exact proportion, but is it a half or such a matter, or more?

Mr. BURR: Objected to as incompetent, irrelevant and immaterial and not being rebuttal.

Objection overruled. Exception.

A. During the time I was connected with the company it was a matter of some sixteen hundred million of gas, and from the information obtained from the Boston Gas Company, and I think Mr. Bemis also testified to the same thing from the Gas Commissioner's report, the gas obtained from the New England Gas and Coke Company up to June 30, 1906, for one year, was 2,261,945,000 feet of gas, going to the Boston Consolidated, all of which, however was not used in Boston, some 432,000,000, not exceeding 432,040,000 were sent to auxiliary companies.

Q. Does the Boston company do any electrical business?

A. It does. I was chief engineer of that concern for some time.

Q. From the Massachusetts report to which reference has been made, and from the sales of gas of other companies, is it possible to figure the profit that is made in that direction?

A. It is.

Q. How much is it per thousand feet of gas sold?

A. 4.6 cents a thousand on the gas sold by the Boston Consolidated Gas Company and sold to its own consumers.

Q. What proportion of the assets, according to the Mas-
5969 sachusetts electrical report, do you figure is devoted to the electrical business?

A. Something over $700,000, I should say between $700,000 and $800,000 out of a total of $24,366,000.

Q. Of total assets?

A. Yes, sir.

Q. Now, reference was made, or a statement was made, by one of the defendants' witnesses, I think it was Mr. Bemis, that the legal maximum fixed by the Massachusetts statute for the Boston company was 90 cents for its gas which must be of a standard of 16 candle power. Is that correct, according to your understanding?

A. A maximum of 90?

Q. Yes.

A. Yes, I think that is correct.

Q. And it was then stated that the company had reduced the price to 85 cents?

A. That is correct.

Q. Now, have you from Mr. Richards, from whom Prof. Bemis obtained his information, any information as to whether that experiment has resulted profitably or not?

Mr. BURR: I object to it as incompetent, irrelevant and immaterial and not being proper rebuttal. He stated the fact that there had been a reduction. As to the ramifications which may make it unprofitable, that is another subject.

Mr. MATHEWSON: I propose, if I can show it by this witness, as I think I am entitled to under the circumstances, that while it has been reduced, the president states in a public statement to the Legislature or Tax Commissioners that the company, for the fiscal year ending June 30, will not be able to pay 7 per cent., even if it does that on the reduced figure.

Mr. BURR: It will be conceded that not more than six months have elapsed since the reduction, and if this is a report to the Tax Commissioners we have seen various reports and various kinds of
5970 reports to the Tax Commissioners which vary greatly from reports made to other sources.

Mr. MATHEWSON: Well, I have not.

The MASTER: Mr. Mathewson, evidence of that kind does not commend itself to me very much. If we are going to have very much more of it I will have to take up the question and see exactly how far in this record the other side have laid themselves open to the question of opening the door to this kind of evidence. My recollection was that some of the hearsay evidence of this kind which they put was with your consent or without very strenuous objection. Now, if they choose to object to it here and press the objection it puts a different aspect on it. The evidence is all clearly incompetent and of very doubtful value for any purpose.

Mr. MATHEWSON: I do not feel that the original evidence was of very great importance.

The MASTER: I think I so stated when I admitted it.

Mr. MATHEWSON: And if counsel do not intend to argue, here is a company paying large dividends and prosperous on an 85-cent rate, I have nothing further to say on the subject. I am merely anticipating, perhaps, any such argument, and if they are prepared to make it I can show, possibly from the same source that Professor Bemis got his information, that it has not proved a success and that the earnings are showing a very small percentage. That is the situation.

Mr. BURR: I have merely shown that the price, as Mr. Addicks now admits, is 90 cents, the maximum legal price, and that it was reduced to 85 cents. As to whether that 85 cents has proven profit-

able or not, that is also a question as to the manner or method
5971 by which the company has conducted its business.

The MASTER: I have all I can do with the price of New York gas, and the Boston gas does not interest me so much.

Q. I should like to qualify my reply as to 90 cents. I should add that under the law they have a right, while they have reduced it to 85 cents, to increase it to 90 cents whenever they see fit, so they are perfectly safe in the matter.

Q. If they do not like the experiment they can go back?

A. Yes.

Mr. MATHEWSON: Is the question excluded?

The MASTER: I shall exclude it I think.

Mr. MATHEWSON: I will take an exception.

Q. Now, in reference to Lynn, Massachusetts, to which defendant's witnesses referred, that is both a gas and an electric business, is it not?

A. It is.

Q. And is it possible without a complete analysis to make a comparison with a company which is doing a gas business alone, as to the returns which it is procuring, or should procure, upon a proper distribution of charges?

A. Not in my judgment.

Q. Now, Mr. Edgerton, I think it was, made reference to the fact that the Bay State Gas Company, one of the Boston Gas Companies, had a main leading out of its station above ground supported on piles. This was cited as confirmation of the theory that exposed pipes were good things. Do you know about that main, and do you know the results or effects of leaving it exposed?

A. I know the main, but I do not recall that Mr. Edgerton cited it.

Mr. KIRBY: There was no such testimony.

The WITNESS: He stated that a main close to the surface of
5972 the ground was advantageous for the distribution of gas.

Q. Very well, exclude the assumption that he stated this. I will then ask you on the general question of the effect, of weather on exposed mains as related to the distribution of gas?

A. I have had personal experience with an exposed main. In the case of the Bay State Gas Company of Massachusetts, of which I was then chief engineer, there was quite a distance between the works and where the main entered the public street, which was marshy, and piles were driven and a base put on the piles and a 30-inch main put above that, so it was entirely above ground, a space above and below. The distance, as I recall, was, I think, about a quarter of a mile. We had so much trouble with our loss in candle power in sending the gas through this main that we were not enabled to enrich coal gas at Commercial Point with it, although we started out with 25 candle power. Accordingly we dredged material from the bay and covered this main about three feet deep with earth, and from that time on we had no difficulty.

Q. How deep were gas mains laid in Boston, so far as your knowledge went and under your administration?

A. We endeavored to average three feet in depth.

Q. Was that considered a minimum depth if conditions had permitted, or was there anything that prevented your laying them deeper still?

A. We took the plane that existed above the water pipes and laid our pipes in that plane, if I may use that expression, the water pipes taking a lower plane than our own. If we could have taken the water pipes position we would have preferred it.

Q. What, from your experience and judgment in the gas business, is your judgment as to the propriety of laying mains
5973 as shallow as possible, or with a very shallow covering of earth, say, eighteen inches from the street?

A. Given no difficulty with traffic, and mains in the south, for instance, where we would have no trouble with frost, I would not object to shallow mains particularly, provided there was enough drainage which could be obtained for the services. But in northern latitudes I should prefer to have them four feet deep rather than three feet deep. It would be better for the distribution department as well as better for the gas, in my judgment.

Q. Reference has been made to the weight of pipe used in the City of Boston, and did you hear Mr. Simpson questioned as to the different weights, or whether they were used at the weights indicated by counsel for defendants in Boston?

A. I did.

Q. Are the gaspipes in Boston as light as that weight?

A. Gas pipes in Boston are heavier than the weights given by Mr. Simpson in New York.

Mr. BURR: When you say pipes you mean mains and services both?

The WITNESS: No, sir; I am only referring when I make the statement to cast iron main pipe.

Mr. MATHEWSON: That is what Mr. Simpson was questioned respecting.

The WITNESS: I have these figures if you would like to have them for comparison.

Q. Very good. What are the figures?

A. The weight of pipe is figured in Boston on the basis of twelve foot for sizes from 4 to 12 inches. In New York, 4 inch is also figured on a 12 foot length, which is 228 pounds, and in Boston 260 pounds. Six inch in New York is based on 12 feet 4 inch length, weighing 394 pounds, and in Boston it is 400 pounds
5974 on the basis of 12 feet. Eight inch in New York is 543 pounds. Boston it is 600 pounds. Ten inch in New York 703 pounds on a 12 foot 4 inch length, and in Boston 800 pounds for 12 feet. Twelve inch in New York 913 pounds, based on 12 feet 4 inches length, and in Boston 1,000 pounds based on 12 feet. In the larger sizes 16 inch 12 feet 4 inches in New York, 1,406 pounds; in Boston 12 feet, 1,485 pounds; 18 inch 12 feet 4 inches in New York, 676 pounds, and in Boston, 1,800 pounds; 20 inch in New

York, 2,000 pounds, leaving out the question of length, and in Boston 2,100 pounds. The same difference would apply; 24 inch, 2,688 pounds, 2,700 pounds in Boston; 30 inch, 3,887 pounds in New York, Boston, 4,000; 36 inch 5,312 pounds in New York as against 5,700 pounds in Boston.

Q. I want to ask you whether in view of the traffic conditions in the City of New York and the sub-surface structures which have to be dealt with and other features which affect it, you would consider it wise or proper to use any lighter weights of gas pipes than the Consolidated Gas Company is now using?

A. In New York City?

Q. In New York City?

A. No, sir, I would not.

Q. Did you go into the subject when you first came to New York as an officer of the Consolidated Gas Company some years ago with Mr. Simpson as to the weight of pipe and consider the subject carefully at that time?

A. I did.

Q. And was that your conclusion?

A. Yes, sir.

Q. As to the cost of distribution which it has been suggested perhaps could be reduced, has there been any change in the wages which you have been obliged to pay your men within the last few months?

Mr. BURR: Objected to as incompetent, irrelevant and immaterial.

5975 Mr. KIRBY: The same objection, and it is not proper rebuttal.

The MASTER: Objection overruled.

Exception to the defendants.

A. Yes, sir; there was an increase of substantially 10 per cent.

Q. In what departments?

A. In all departments all men receiving less than $2,000 a year.

Q. What was the occasion of this increase?

A. In one of the stations of one of the other companies the men had a meeting with the idea of demanding increased pay, and at one of the shops also in New York they sent a round robin to the management, and the matter had been considered frequently by the management for the last two or three years, realizing the situation that really existed, that the cost of living had gone up and we realized that the demand of the men would be a fair one, and we met the question at once rather than meet a question of possibly a strike and trouble.

Q. How much in total would the increase involve, what additional expense about?

A. It was about $225,000 at the time it was considered. I think that based on last year, 1905, it would have been somewhere in the vicinity of $180,000 a year, which would on the sales at that time be about 1.4 cents a thousand, but I have already stated previously

that the difference in labor cost of .78 of a cent, I believed it would not be maintained.

Q. That was what you estimated originally?

A. Yes, the difference in labor between one period and another, saying that .78 cents would be taken up and probably .62 cents a thousand additional.

Mr. BURR: I move to strike out that testimony with regard to the increase in wages, Mr. Master, because it is immaterial and
5976 irrelevant, and it is not rebuttal, and it is plain to be seen that we have been confined here during this inquiry to a certain period very well defined, and were not permitted to go into any other period. If they saw fit for any reason to increase the wages given to affect this inquiry may be 25 per cent., it would have no bearing on the testimony which has been given here all these months as to the situation as it existed during different periods.

Mr. MATHEWSON: You have brought into evidence what would happen in the future as to the Astoria operations and what would happen in the future as to increased sales, and you have done nothing but deal with the present and the future. You have to anticipate the future in any order that is applied here. You cannot deal with the past.

The MASTER: I will allow it.

Exception.

Q. I will ask you whether this increase in wages had anything to do with this inquiry or not?

A. Absolutely nothing in any way, shape or form.

Q. One of the witnesses for the defendant spoke of Huntoon governors——

The WITNESS: One moment. May I add something in regard to the question about the shops?

Q. Yes, if it is pertinent in your judgment.

A. There were ordinarily in our shops between four and five hundred men; in 1905 the company had to discharge 301 men and there resigned from those shops of their own accord 294 men, of which 126 definitely resigned for better positions, making a total change in the shops of 595 men in that year, or more than the average
5977 of the entire number of men employed. I meant to give you the influences that were bearing upon us in regard to that.

Q. In other words, did you find it possible to obtain good men constantly at the prevailing rate before this increase?

A. No, we were met by this situation by the men. Huntoon governors may be obtained of the Wilbraham Green Blower Company of Philadelphia. Such governors have been purchased within twelve months by the Astoria Light, Heat & Power Company.

Q. So they are not obsolete and out of date?

A. They are still used.

Q. Reference was made to the item of a few tons of coke which were charged by one of the Boston companies in the production of gas at $6.23 per short ton. Do you know whether that was an exceptional price for coke, and to what it was due?

A. I do.

Q. Very good, state it.

A. That coke was transferred under my personal direction from the Commercial Point Works of what was then the Boston Gas Company to the Bay State works, to the Calf Pasture works of what was then the Bay State Gas Company. Some three thousand tons were obtained during the coal strike, and we took that at $6.23 at the Commercial Point wharf when coke was selling at that time during the coal strike at $7.50 to $8.50 per ton, and anthracite coal from $15 to $20 a ton, with no customer allowed to receive more than one-half ton.

Q. That explains that $6.23 at that t-me?

A. That was in 1902-03, and the small amount that you see in that following year was simply something that was in the pile and that was used up during the following Gas Commissioner's year, but the vast bulk of it you will find in the preceding year in the report.

Q. Does that represent the usual and ordinary price of
5978 coke in Boston?

A. No, it does not, not from the Boston company.

Q. Is the Astoria plant of the company now in operation?

A. It is.

Q. How long since it began to produce gas?

A. The 3rd of December, I think, was the time it started, about 11:50 A. M.

Mr. BURR: The 3rd of December?

The WITNESS: I think it was Monday, the 3rd of December, at 11:50 A. M.

Q. A suggestion has been made as to oil, that the fact that we make coal contracts with various parties to supply anthracite coal in quantities should be a precedent for making contracts with separate individuals for the oil supply. What is the distinction which governs, Mr. Addicks?

A. Well, in the first place, the customary contract is for all your supply in oil, and in the next place, there are not the people in the market to supply that oil the same as the coal. In the case of the coal companies there are a great many coal companies who can supply a very large amount of coal, but even such companies do not pretend to supply all the coal, nor do they bid for all the coal. They usually bid stipulating not exceeding so many thousand pounds. And as I stated, I think before those contracts are placed not only do we distribute them to the various people who can supply the kind of coal that we want, to wit, West Virginia and Pennsylvania coal, West Virginia being the cheaper coal ordinarily, but also, with reference to the railroad supplying it, as we are dependent entirely upon rail supply, and not upon pipe lines as well. We have to pick out shippers who can supply both by the Pennsylvania and the Baltimore & Ohio, so if there is trouble with one we can get it from the other.

5979 Q. There are a great many large coal companies, are there not, substantially on a parity?

A. Yes, sir. But they do not supply all their product to one per-

son. If they supplied all their coal to us one year and then lost the contract with us they would have no business the next year.

Q. And if you had a contract with a company which operates over one line of railway and there is a strike on another line you are not shut off entirely?

A. No, sir, we get from the other railroad.

Q. What have you to say as to the criticism on the tar and ammonia contracts? How is the company's price governed, I mean the price which it receives?

A. That was governed in the usual way with which I am familiar in such contracts as I recall it. The Boston contract was on the same basis in former years when we had a good deal of tar and ammonia before the coke oven plant started.

Q. The company receives an increased price as the value of the product distilled from the tar or from the ammonia advances the market?

A. Yes, sir.

Q. A sliding scale?

A. A sliding scale.

Q. Mr. Marks referred to certain retorts at Fourteenth and Forty-second Streets not being in use when he examined the plants. Will you state why they were not in use?

A. In 1905 we had coal on hand for fifty-eight days, and this year, on account of the failure of the coal companies to deliver coal, we only had at the same time twenty-one days' supply on hand, and the production had to be restricted to prevent our running out of coal.

Q. That is due again, is it not, to the shortage in the West of bituminous coal, or don't you know about that?

A. That is my information, but I cannot state it as a fact. I believe that to be it.

Q. Is it necessary to shut down or cool retorts out for any purpose in ordinary circumstances?

5980 A. Not when you have a water gas plant to take the variation in the output. If you had all coal gas you would have to shut your retorts down temporarily from day to day.

Q. What about scurfing?

A. Well, it is always understood that a certain proportion of the retorts are out of service constantly to remove the collection of carbon which collects in all coal gas retorts. That amounts in New York practice from 2½ to 3 per cent., probably would never be lower than 2 per cent.

Q. Did you read Mr. Edgerton's testimony that the Fourteenth Street coal gas plant was a dilapidated old plant?

A. I think I heard Mr. Edgerton say that.

Q. What have you to say to that?

A. Well, I think Mr. Edgerton is in error in his statement. I have no doubt, Mr. Mathewson, to cover that statement, if I sent a force to whitewash there Mr. Edgerton would go there and say what a magnificent plant it was.

Q. As a matter of fact, a coal gas plant is not as clean as a water gas plant in appearance?

A. No, it is not as clean, and particularly in the retort house the ventilation is apt to be poor and the coke is all over the place, and not only that, but in a coal gas plant they are very apt to preserve their material by painting it with tar, and if there is anything more distressing than another, it is seeing an entire plant painted with black. It is depressing to the eye. If it were painted with whitewash or a paint of cheerful color he would have had an entirely different impression.

Q. Let us take Mr. Edgerton's depreciation method, without going into many details. How did you find he treated the generators at Ninety-ninth Street, Forty-fourth Street and Twenty-first Street, and when were they installed respectively?

5981 A. I read Mr. Edgerton's testimony that he applied a uniform 10 per cent. depreciation on all the water gas generating apparatus, which included the generator, carburetter and superheater. Well, 10 per cent. would happen to be 5 per cent. for two years on the apparatus that was installed in 1904. But at Forty-fourth Street and Twenty-first Street they were gas generators, that I have ascertained in the case of Forty-fourth Street, they were installed in 1899, and in the case of Twenty-first Street they were installed in 1891, so that his method of application of depreciation seems to me it is not—it is rather peculiar, to say the least.

Q. In other words, in Twenty-first Street there were some generators installed in 1891, some in 1899 and some in 1904, is that right?

A. Yes, sir.

Q. And all those at Forty-fourth Street and Ninety-Ninth Street were installed in 1904?

A. No, there were some—I am wrong, at Twenty-First Street. There is an error in your copy. There were at Twenty-first Street, 12 and 13 foot sets, and they were installed in 1904 and 1899. The 12 foot sets in Forty-Fourth Street were installed in 1904 and the eight feet 6 inches sets in 1899.

Q. And they are all given a depreciation of ten per cent. alike, are they?

A. Yes, sir.

Q. Did you read the testimony of the defendants' witnesses in reference to the single main system throughout the City of New York, its advisability in lieu of the system as it exists now, with duplicate mains to some extent?

A. I think I heard that testimony or read it, I cannot say which.

Q. What would be your view as to the wisdom of a single main system in New York City?

A. Well, applied specifically to the single main system on every street in New York it would be a perfect absurdity. The ave-

5982 nues north and south should all have duplicate mains. Fourteenth Street, Forty-second Street, Seventy-second Street and similar streets should all have duplicate mains. Where there is a car line, like Eighteenth Street, it certainly should have duplicate mains, and on such narrow streets, I mean the ordinary streets we have and very long blocks, like between the avenues, it is an open question, in my mind, whether it would not be advisable to have a main on each side of the street, it is only a case of cost of installation.

Q. It is a question of just and operating cost?

A. Ye, sir.

Q. In reference to the avenues in some places there are more than two mains on the avenues it appears. Is it not a fact that mains are run on some of the avenues which are known as supply mains, and are not mains from which services are drawn for service on those avenues?

A. The larger mains for furnishing additional gas to the mains to which services are connected, would naturally run on the avenues and on many of the cross streets as well.

Q. The transfer mains?

A. Well, I am not referring to the transfer mains in that case, I am referring to such mains as would give gas to the smaller mains. In addition to that there would be mains required to connect the various works together, which would be pumping mains; they might have a pressure at one time and possibly a slight vacuum at another. It is not wise in my judgment to attach service to the larger mains.

Q. And the smaller mains on the avenues, even if they were set on either side of the street, would not be sufficient to take care of consumers, and at the same time act as supply mains, transfer mains or pumping mains?

A. Certainly not.

Q. In reference to the high pressure, system which Mr.
5983 Edgerton advised, I will ask you whether in your judgment it would be either safe or wise or economical to instal such a system in the City of New York?

A. It would not, sir.

Q. In addition to the cost of the mains and governors, which Mr. Edgerton computed at something over four million dollars, would there be any other expenditure?

A. There would.

Q. For what purpose?

A. Installation of the power plant and pumping machinery necessary to supply the gas to the high pressure main system that Mr. Edgerton has testified to, and unless many of our stations should be wiped out entirely, I don't know whether Mr. Edgerton had any idea of concentrating them at one or two points or not; I do not think it is feasible, and I presume he did not—but it would require such plants at our various distributing stations, the larger ones, that would cost a very large fixed charge annually, which would run up into the hundreds of thousands of dollars. I am in the midst of that investigation now.

Q. It would amount then to several cents a thousand on the present output of gas?

A. Yes, I think so.

Q. Reference has been made to the sale of coke. Mr. Doane testified as president of the National Coal & Coke Company and was asked as to whether any thought had been given to the marketing of the coke which came from the Astoria works when they are in full operation. Has that subject received attention from you and the other officers of the Consolidated Gas Company?

A. It has.

Q. Have you from time to time in the past conferred with Mr. Doane and advised with him and in favor of the coke company?

A. I have and for a long period—

Mr. BURR: I object. This has become monotonous. Mr.
5984 Mathewson puts words right into the mouth of the witness, "didn't you do so and so and so," instead of asking him what he did.

Mr. MATHEWSON: I will ask him now what he did.

Q. I will ask you now what the company has been doing in that regard recently and what they are now doing?

A. We have been having a house to house canvas of every house and block in New York, laying out an entire system to determine exactly where all the fuel is consumed in every part of New York City with the idea in the case of Astoria to displace coal in every place available.

Mr. BURR: I submit this is not proper rebuttal, what they have done since the testimony of the defendants with regard to coke, a recent matter that they have evidently instituted an investigation into the situation that exists in New York.

The MASTER: I will allow it.

Mr. BURR: Exception.

A. I think it has been under way now a year and a half, so far as the current uses of coke are concerned, the coke business has been cared for by the demand of to some extent by the water gas works, and it has been in addition a question of soliciting. The price of course has to govern, whether we can sell coke against anthracite coal, or not, and the price has been increased or decreased during the time I have been in New York based upon the supply and demand. If we can get more for coke we will increase it, and where we have been compelled on account of the situation to make a concession, we have made concessions at times.

5985 Q. Have you material or advertisements actually prepared in your offices to put out as soon as the Astoria coke is on the market in quantity?

A. Yes, sir.

Mr. BURR: I object to what they propose to do to sell their coke in future as soon as they get located in the Astoria plant.

Mr. MATHEWSON: Those questions were expressly asked from Mr. Doane by you or Mr. Kirby as to what was being done to dispose of the Astoria coke.

Mr. KIRBY: Well, he answered that.

Mr. MATHEWSON: I am trying to ask the witness. You do not seem to want information about it.

The MASTER: If you regard this handbill as of persuasive force put it in; I will let you.

Mr. MATHEWSON: No, I merely asked whether they have prepared advertisements and made other arrangements. The answer is what?

The WITNESS: The answer is, yes.
Mr. BURR: I suppose it may be assumed they never did before.

Q. In reference to other Massachusetts cities besides Boston and Lowell, to which attention has been called, with the same statement as to price of oil, have you any information in the case of any of those cities, or do you get any from the record as to what their gravity is and the character of the oil otherwise than it is merely gas oil?
A. I don't recall any, Mr. Mathewson.

Mr. MATHEWSON: That is all I have to ask of Mr. Addicks, at present at any rate.

5986 Cross-examination by Mr. KIRBY:

Q. To whom, Mr. Addicks, is the larger amount of coke sold in the City of Boston?
A. What company?
Q. I don't mean company. I mean is it sold to householders or for manufacturing purposes?
A. The company of which I was chief engineer?
Q. Yes, sir.
A. Householders; that is to say, when I say householders, I mean the current trade, similar trade in that New York.
Q. Do you know to whom the New England Gas & Coke Company disposes of the greater part of its coke?
A. At one time I think the majority of it—I won't say the majority, but the very largest consumer they had probably were the railroads—I won't state exactly. I think they are now selling it less to the railroads and more to others, but I won't state that as a positive conclusion.
Q. Whom do you mean by others?
A. Well, the other sources of coke to whom they sell a lot of it, bagging trade and every other trade, they may have trade outside of Boston, in towns outside of Boston.
Q. Would you consider it a fair statement that they dispose of over two hundred thousand gross tons per year for domestic and industrial services?
A. I will have to figure first, two hundred thousand gross tons?
Q. Yes.
A. What are you referring to now?
Q. 1905.
A. This is gross tons, is it not?
Q. Yes.
A. Two hundred thousand, yes, I should think that would be a high figure.
Q. You think it would be twice as much as the figure which you have in mind?
A. Two hundred thousand would be twice as much as the figure I have?
Q. It would be twice as much as the figure you have in mind?

A. I wouldn't like to say without referring to my notes
5987 as to how much coke that they make.

Q. Then you would be inclined to disagree with the following statement that the large output——

Mr. MATHEWSON: Are you going to read the statement after you have asked him and he says he thought that was a high figure? Is it proper to then read the statement as though it were evidence and ask him again?

Mr. KIRBY: Instead of reading the statement I will ask him this question:

Q. Is it your information that the New England Gas & Coke Company produces as much as four hundred thousand gross tons per year of coke?

A. Well, I figure about 360,000, here on this paper, but I was taking 300 days in the year. There are 65 more days. They might produce 400,000.

Q. And you do not consider that half of the amount produced is disposed of for domestic and industrial service?

A. I thought we were treating the domestic part of it, Mr. Kirby. Now you are introducing industrial service. What do you mean by industrial service?

Q. For other than firing of locomotives, and those uses to which you referred in your first answer?

A. Well, of course, you know that I had in mind that about 60 per cent. of their coke was used by the locomotives. You are, of course, taxing my memory to keep these things in mind. If 360,000 tons would be obtained of this, it was, in my mind, about 60 per cent. of that went to locomotives. Then I said that I thought the locomotive service had been reduced to some extent, but I didn't remember how much.

Q. Then you would not be inclined to disagree with a statement that, say, 150,000 tons were used for domestic services?

A. Now you are talking domestic services and leaving out industrial.

5988 Q. Yes, I am leaving out industrial now?

A. Well, I wouldn't want to take any position on it at all until I knew the source from which the information was given.

Q. Well——

A. As to what weight to give to the statement.

Q. And I will read the statement which Mr. Mathewson has suggested I should not read. I have before me the book issued by the United Coke & Gas Company of New York, entitled "A Short Treatise on the Destructive Distillation of Bituminous Coal," with reference to by-product coke ovens, New York, January 1st, 1906, and on page 101 thereof I find the following statement: "The large output of the New England Gas & Coke Company averaging always some 200,000 gross tons per year were disposed of for domestic and industrial service, a similar amount being used for firing locomotives, particularly in suburban service, because of its smokeless nature."

A. Some of those statements I think are correct. I don't know

how accurate the information is from this source, as they are not the people who own the New England Gas and Coke Company, although they are the people who own the patents under which the New England Coke and Gas Company was built. As regards the service in the locomotives I think it is correct; that is, it is used more particularly on local service rather than on long distance service. As regards where the remainder is used, I know in a general way it is used for firing boilers and is used for domestic use in a small way, and it is used in a bagging trade which is quite large. I know the time I was there it was shipped to numerous outside towns, but just what those shipments are I did not at that time know, nor have I since kept track of.

Q. Do you know how many gross tons of coke the Con-
5989 solidated Gas Company produced during the year 1905?

A. I can't tell you offhand, no, sir.

Q. Can you tell me approximately?

A. No, I don't think I would trust my memory to tell you even approximately.

Q. Do you know how many gross tons of coke it is expected to produce at Astoria each year, or during the first year you are in complete operation with your present installation?

Mr. MATHEWSON: The first unit?

Mr. KIRBY: The first unit.

A. Well, that would be based—I have not made any distinct figures on how many tons will be produced under the ordinary conditions of affairs. I can tell you approximately what would be produced.

Q. What is that approximate amount?

A. Take four thousand million feet of gas on the basis of ten thousand feet to a ton, that would be about four hundred thousand tons of coal, basing one-half ton of coke to one ton of coal it would be about two hundred thousand tons of coke approximately, I should say.

Q. Or just about the amount——

A. The figure which you use. It is a rough calculation and I don't know whether I made *on* error or not, but it looks that way.

Q. How long has this canvass, this house to house canvass of which you have spoken, been going on?

A. I think for a year and a half, or more.

Q. How many men have you had employed?

A. Only one in that.

Q. An employee of the Consolidated Gas Company?

A. No, he is employed by the Coke Company.

Q. How many men had you employed before that time, or have you no knowledge of that?

5990 A. Well, I have no doubt I have had knowledge, but I have forgotten in the multiplicity of the other things.

Q. This is the first canvass of the kind which has been made within your knowledge?

A. No, I won't say that either, because I have an indistinct recollection in my mind that something similar was done once before, but I won't be positive.

Q. Have you made any effort to find a large consumer such as a railroad company, or factory, or one who would in that way take the place of a large consumer for part of the product of the New England Gas & Coke Company?

A. Well, Mr. Kirby, you are assuming that the coke of the New England Company is the same coke we had over here.

Q. Oh, no, I am not.

A. Well, it is a very different proposition, of course, the proposition of our coke and the proposition of the New England Gas & Coke Company.

Q. That is not quite the answer?

A. Yes, I know it is not. The New England Gas & Coke Company has taken one of our consumers rather than our company able to take their consumer. I think it is due partly to their competition that we lost part of the railroad trade. Now, we have not made an effort up to date to endeavor to have a railroad company use coke in their locomotives, if that is what you mean. We have endeavored, irrespective of Astoria, to get the industrial trade, if I may use that expression—that is to say, the boiler use of coal in New York both for coarse and more particularly for fine.

Q. This house-to-house canvass, I take it, is more for the purpose of obtaining this domestic use in the furnaces or ranges or things of that kind rather than under boilers?

A. Our purpose was to determine just where coal was used, my idea being that it would give us a line on just where we would
5991 go to do the best work and the quickest work and the greatest hope of getting business, that is my point of view of it.

Q. So that as yet there has been no real effort made to get the business?

A. Oh, yes, but not the business of the future of Astoria, because we are not ready for it yet. It is useless for me to build up a trade in anticipation and run right out and say we cannot supply the trade when we built it up.

Q. So that one of the chief necessities to establish a good coke business is to always have coke on hand to supply the demand?

A. Well, you want to have it—it all depends, of course, on the size and the constancy with which you make your gas. Now, take this case of the shortage of coal at 14th Street. If you have that condition arise I think it is apt to injure your trade; if you do not furnish your customers constantly when required they have to go outside to get their coke, and it is not a good thing for your trade. Of course, the reverse of that, Mr. Kirby, is true also, and we don't want to pile coke up unnecessarily.

Q. But your efforts will be to do two things, first to obtain consumers for the number of thousands of tons of coke which you produce in each year, and next to produce that coke so there will never be a shortage under the demand that you have at any one time?

A. Yes; particularly if the shortage is in the direction in which it would be an important one to keep the man supplied with his fuel. There might be some places where you could cut off from time to time.

Q. In your criticism of Mr. Edgerton's testimony in reference to a high pressure distributing system, you state that the cost of installing such a system would be great. I presume it also follows that there would be some savings on such a system over one
5992 where gas was distributed at a lower pressure: a small main under the high pressure will carry more gas than a main of the same size under low pressure, will it not?

A. Well, your statement is correct, but you have two parts to your question. One supposes it is not a saving, and in the next place you say a small main under large pressure will carry as much gas as a large main under low pressure. I know of no saving that would be made by such a system. That is No. 1. No. 2, your statement is correct, that if you put a main under pressure you can carry more gas through that main.

Q. I presume it is also true that the smaller the size of pipe to distribute a certain number of cubic feet of gas, the lower the cost of such pipe or distributing system?

A. That depends entirely upon the amount of attention that is to be given and how often it is to be renewed.

Q. Now, we are coming to the question of maintenance and not installation.

A. Oh, well, a small main may cost more than a larger main to install.

Q. Are you prepared to state that a main carrying gas under a pressure of from ten to fifteen pounds would cost as much as a main to carry the same number of cubic feet of gas under a pressure of from two to five inches?

A. It might.

Q. Are you prepared to state that it would?

A. No, I am not prepared to state that it would. Mr. Edgerton heretofore has discussed, I think, thirty pounds pressure, he has gotten to ten now.

Q. Well, let us say twenty-five pounds.

A. Well, Mr. Kirby, if you take high pressure mains all over the city, of course you are going to add to the capital and you have got to carry a main under pressure in all directions, whether you need it in certain directions or not. I understood this was to effect equalization of ssure. I am talking now about the gen-
5993 eral system. Yo.. take a mile of pipe from this spot where we are, one mile, and put it under twenty-five pounds pressure, and neglect entirely maintenance, neglect entirely increase of capital, everything but the mere sending of that gas one mile, as far as cost of investment in that pipe is concerned, it would be apt to be less than a pipe with a lower pressure made of the same material.

Q. The main for the high pressure gas would be less in diameter, would it not?

A. Less in diameter, yes.

Q. Would it have the same weight as one for low pressure gas?

A. It might or might not.

Q. How high a pressure do you consider that your present mains can carry without danger?

A. I don't think it is safe to carry any more pressure than we are carrying at the present time with our highest pressure main. I would not care to carry much over that. It is not only the cost of a main but the question of the results of an accident in case a high pressure main should be ruptured; it is not a question of the material in the main if it is not ruptured.

Q. Do you consider that a gas main should be more strongly constructed to carry a certain definite pressure than a water main to carry a pressure of the same amount?

A. I never had to compare heretofore the pressure of a gas main with a water main. Under the same pressure gas will leak where water will not, but that is a mere question of the joint and not a question of the main.

Q. Otherwise you see no reason to make a distinction, would you?

A. Well, you are referring now to capital, not a question of maintenance.

Q. No, I am referring to the purchase price of pipe; what piping would cost.

A. I think if you eliminate cast iron pipe and restrict your inquiry to wrought iron pipe and eliminate also the possible
5994 accidental leakage from a screw joint, we will say that a wrought iron pipe would carry gas as safely as water of the same pressure, providing, however, there is no corrosion or deterioration of the wrought iron pipe.

Q. Do you know the difference in the carrying capacity of a main of a certain definite size in one instance, where say the pressure is two inches, and in another where the pressure is twenty pounds?

A. No, not offhand.

Q. You have spoken of the 10 per cent. depreciation factor used by Mr. Edgerton on various water gas apparatus. Am I to understand that you consider 10 per cent. depreciation on the apparatus installed in 1904 too high?

A. I should not find any depreciation.

Q. That apparatus has been in use since the time of its installation, hasn't it?

A. Undoubtedly.

Q. How often do you have to reline such apparatus?

A. A portion of it every year.

Q. Do you know how much that relining costs?

A. I haven't it in mind, no.

Q. Do you know what proportion to the entire cost of the apparatus it is ?

A. I can't tell you offhand.

Q. Is there any part of that apparatus which has to be repaired or renewed?

A. It is a regular annual, semi-annual, or every three months possibly, operation; and then carburetter brick might be necessary; it depends on all the conditions and all the service and everything of the kind. That is constantly being done.

Q. Superheater bricks?
A. Not so often.
Q. Well, they have to be renewed?
A. Yes.
Q. And the apparatus does deteriorate?
A. Why, it is as good as it was before when we replaced those bricks. It is a matter of ordinary current repairs.

5995 Q. Do you in appraising an apparatus usually take no depreciation therefrom when certain parts thereof have to be renewed from time to time?

A. I should not ordinarily take depreciation off a piece of apparatus in constant use, it having no evidence of anything but proper care and proper maintenance, for the repairs as ordinarily conducted in the gas business, which is a business which has to have its apparatus in constant good condition to operate twenty-four hours a day.

Q. That is so even if the repairs have not been made or are necessary at the time of that inspection?

A. If I saw anything that specifically required renewal, and there was evidence that the apparatus was not maintained as I am accustomed to see it maintained, why then I should be apt to take note of it, but if it is maintained in the ordinary gas business as I know it must be maintained, why I think that it is fair to assume that the machine is in first-class repair.

Q. Then it would be due to its physical appearance that you would base your deterioration factor?

A. Everything that I could ascertain from an inspection of that, but I don't think that I or anyone else can look at a piece of apparatus which is running apparently perfectly smooth and in perfect condition, bearings in good condition, the machine doing excellent service, and say that has deteriorated so much per cent. It is to me an absurdity, plain and simple.

Q. Assume to your knowledge that the interior had not been cared for, that the renewal of these bricks which you have spoken of had not taken place, and that such renewal was necessary, would you use any depreciation factor there?

A. The renewal bricks you speak of I should not consider in depreciation for a moment. They are mostly normal yearly repair and have nothing to do with the apparatus at all.

5996 Q. And because that would be charged up to your repair account you would not consider it was a depreciation factor on the apparatus?

A. That is, anything that has a normal condition, is in constant use, the machine put together with the idea that that shall be done casually and continuously, I could not consider that depreciation for a minute.

Q. When it requires renewing it is not as good?
A. Perfectly; just as good as though just put up.
Q. When it needs money to be expended upon it to have it in a running condition—
A. Just as good, sir. In fact, it might be better.

Q. Going to the 14th Street, we have some, in fact many retorts there, for the production of coal gas, have we not?

A. Yes.

Q. Are those retorts of the same general character that you have installed at Astoria?

A. Well, I cannot recall whether all the retorts at 14th Street are single length retorts or not. I am inclined to think they are single retorts. If so they have the same general character as far as shape is concerned. The mere question of putting in single retorts or otherwise is a matter that can be done either way.

Q. Are they the same size?

A. No, I think they are smaller.

Q. Which is the smaller?

A. 14th Street.

Q. Why didn't you install that size at Astoria?

A. Well, the size at Astoria is—as a matter of fact, I didn't pass upon the size of the retorts at Astoria.

Q. If you had would you have put in the size at 14th Street?

A. I don't remember exactly what is at 14th Street, and I don't remember the exact size at Astoria. My impression is they are something like 16x26, but I don't remember distinctly. If so, that is a very good size. If the size of retorts at 14th Street is less than that, and the settings would permit a larger retort, I would
5997 be inclined to put in a larger retort, provided the furnaces would burn off the coal necessary to that larger retort. It is a mere question of the size of the furnace and the amount of coke used in the furnace, and how much coal you can burn off.

Q. You have some inclined retorts at Astoria, have you not?

A. Yes, we have.

Q. You consider that a more modern type of retort than the horizontal retort?

A. No.

Q. Why were they installed?

A. The inclined retort and a horizontal retort and a vertical retort were all illustrated in the early history of the gas business away back in 1802, and 1803, as far as retorts are concerned. The inclined retort has been adopted within the past ten years, and it has been installed in a number of places. The horizontal retort, with the modern machinery, is pressing to-day very hard, and I would not like to characterize one or the other as the more modern. As a matter of fact, the two types were installed to determine the best type to use for the remainder of the work. That is the reason they were installed.

Q. Have you any results this far which would lead you to believe that the inclined retort had any superiority over the horizontal retort?

A. Not so far; we cannot tell. If I were asked to state to-day which I would put up in place of the inclined or horizontals, I would not be prepared to tell you.

Q. You would not, however, install such retorts as you have at 14th Street?

A. Certainly not. When you say retorts, I am taking the whole thing, if you say the whole thing includes all.

Q. I mean the whole thing, the stacks of benches as we have it at 14th Street.

A. I don't want to fence with you about it. If you take the whole thing I will say, very frankly, certainly I would not.

Q. I presume you had nothing to do with the contracts
5998 which were entered into between the Consolidated Gas Company and the Barrett Manufacturing Company in reference to the sale of tar and ammonia or ammoniacal liquor, did you?

A. I don't think that I had anything to do with the final making of that contract. I knew about it at the time, but I don't recall having anything to do with making that particular contract.

Q. Do you know whether or not any effort was made to obtain a better contract or a contract with other parties than the Barrett Manufacturing Company?

A. Well, I cannot answer that, yes or no. I know I figured on it very carefully myself to see what I could do in the matter personally. I couldn't suggest anything better.

Q. Are you familiar with the current market prices of coal tar or ammonia sulphate?

A. Well, I was thirty days ago, or sixty, but I couldn't tell you now positively what they are.

Q. Your coal is purchased from several companies, is it not?

A. Yes.

Q. And the companies bring their coal into New York over several lines of railroad?

A. At least two, I don't know how many more. I think only two, two general systems.

Q. What two systems are those?

A. I have in mind the Baltimore & Ohio Railroad and the Pennsylvania. I don't know what other lines they might bring coal over.

Q. And you consider that a safeguard which is worth considering in awarding your contract for coal?

A. Yes.

Q. Do you consider that there might be a strike on one of those lines and not a strike on the other?

A. Well, I can't say that a strike on one would not result in a strike on the other.

Q. Was that an element which entered into your consideration in awarding those contracts?

5999 A. Yes, I did have in mind that a strike on one would not necessarily mean a strike on the other. For instance, the Pennsylvania Railroad one time swept off every bridge along the Juanita River. Their traffic was transferred to other roads. That was an incident, you know.

Q. But you would be inclined to have your coal coming into New York over as many lines as possible?

A. Not necessarily as many—a reasonable security. We have a stock of coal on hand, or attempt to, as well.

Q. Your oil comes from Bayonne?

A. I don't know that it does entirely. Some of it may come from Philadelphia. I think those two sources are the principal sources.

Q. It comes from Philadelphia by rail?

A. I don't know; I can't answer that definitely. I know a great deal of it does come from Bayonne, but if I said it all came from there, some of it might come from Philadelphia by tank steamers.

Q. But by far the greater proportion, in your opinion, comes from Bayonne?

A. I should judge so. It is the most natural place.

Q. Do you know how that oil does get to Bayonne?

A. I only know from Commissioner Garfield's report more than anything else. I haven't read it all, but I have read considerable of it.

Q. You have stated——

A. I judge there were pipe lines from there.

Q. You have stated that the storage capacity of this gas oil in tanks of the Standard Oil Company was backed up by their pipe lines?

A. Yes, I knew of their pipe lines there.

Q. Do you know how many pipe lines there are coming into Bayonne?

A. I read it a few days ago, and my impression is there are either two or three into New York City.

6000 Q. Two or three into Bayonne?

A. I think there are at least two into Bayonne, but it would be a question of refreshing my mind.

Q. Coming from the same field?

A. I cannot answer as to that definitely.

Q. Following the same general route?

A. I can't answer that definitely. I will give you the report, if you would like to have the information.

Q. Those pipe lines do not carry gas oil, do they?

A. Well, I presume not; probably carry crude, I should think. I cannot say that they do not any of them carry gas oil.

Q. It is your opinion that they do not.

A. That is my impression.

Q. Now, as a matter of fact, gas companies purchase their oil not from the wells but from the refineries, is that not so?

A. Ordinarily, I think, in the East.

Q. The gas used by the gas companies is not the crude product, is it?

A. No, not in the East.

Q. Is that so in any part of New York State?

A. I don't recall any case where it is true.

Q. Do you know of any large refineries at all situated in the western part of this State?

A. I shall have to again refer to the report. The report gives every refinery there is. I can hand you that if you like to have it.

Q. But it does not necessarily follow, does it, that the close proximity of a gas works to an oil well means it is able to purchase its oil any cheaper than one that would be a thousand miles away but right next door to a refinery?

A. Well, I would be inclined to think the one that was nearest the well would have cheaper oil.

Q. And upon what reasoning do you base your conclusion?

A. If they couldn't get it I should think they could get the crude.

6001 Q. Would you advocate the use of crude oil?

A. Some crude oils I have had very good results with.

Q. Is crude oil cheaper or as cheap as gas oil?

A. We do not buy crude oil to-day.

Q. You do not believe you can?

A. Not in the East.

Q. No, I don't think so either?

A. I am glad we agree.

Q. In building your retorts, your benches, and preparing the same, and in doing work of that character, do you employ your own labor?

A. Consolidated?

Q. Yes, the Consolidated?

A. Well, I can't tell you offhand whether those are their own men or whether they go out and get other men. I don't believe I can answer that question definitely.

Q. What is your impression?

A. My impression is that much of it is done through our men, but whether we go outside and get some of it I can't tell you at the moment. I should think it would depend upon the size of the job. It might be they would have to go outside but the effort would be to do it undoubtedly with their own men.

Q. Wouldn't the effort be to do it as cheaply as possible?

A. Yes.

Q. Now, is it not a fact that you can and have done such work cheaper by doing it under contract than by doing it with your own men?

A. I can't answer that as to the Consolidated Gas Company.

Q. Can you give me the date when this 10 per cent. increase in wages went into effect?

A. I think I can.

Q. When?

A. From memory, on or about the 1st of December, 1906.

Q. Did I understand you in saying that the condition of the streets in New York were worse than that of Boston, as con-

6002 cerns the laying of pipe—gas mains?

A. I don't recollect making a reply to a question that was framed in that way.

Q. What would you say if such a question were framed in that way?

Mr. MATHEWSON: Do you frame it in that way?

Mr. KIRBY: I consider it framed.

A. What is the question?

Q. Do I understand you in saying that the condition of the streets

in New York was worse than that of Boston, as concerns the laying of pipe, gas mains?

A. Yes and no.

Q. Now, to what conditions does you- yes refer and to what does your no refer?

A. I think there are some small parts of Boston where it might be just as complicated as New York. Take the very bad part of Boston and the very bad part of New York and on the average New York is a great deal worse than Boston.

Q. The streets of Boston are considerably crookeder than those of New York, are they not?

A. I think if you take the same relative age of the territory—I mean the age of the district, I don't think I should like to differentiate as between the lower part of New York and parts of Boston, because I think I could start in one part of New York and land in the same spot occasionally as in Boston.

Q. Is it not a fact that in laying mains in congested parts of the City of Boston more special joints are needed than in laying mains of the same length in the congested part of the City of New York?

A. Well, in this way, that the congested part of Boston may not be exactly the same character as the congested part of the City of New York. For instance, perhaps the most congested part of the City of Boston is Tremont Street in the vicinity of West,
6003 and Tremont Street is a comparatively straight street there at that point. It might not require more specials. On the contrary, down around the old north end part, Salem Street and Hull Street, it is pretty crooked. I don't know as it is any more crooked than some streets in New York. They are very similar.

Q. All these weights which you gave for gas mains in Boston, are they the weights of the mains laid by any one company?

A. Those are the weights in Boston proper. There are other weights for the suburban companies.

Q. Now, which company put down these weights that you have first given the weights of?

A. This is for Boston proper and some part—probably some parts of Roxbury there, and Boston proper. I will give you the weights of the suburban if you would like them.

Q. When were those mains to which you have already made reference put down?

A. Well, the date on this is January 27th, 1897.

Q. You mean the date on what?

A. These weights which I have given to you.

Q. Do you know from what source these were derived?

A. This is marked "Approved, W. R. Addicks, Chief Engineer," so that I think I had something to do with it; but the weights of pipe that I give are the weights that were commonly used in the Boston company. There was one exception to that.

Q. You mean by that the Consolidated Company?

A. No, I mean the Old Boston Gas Company for years. One exception is the six-inch main, which, in some cases, instead of weighing four hundred pounds to the length it weighed as much as 460

pounds to the length, but I did not allow any more pipe of that weight to be laid. The other weights were what were nor-
6004 mally used by the Boston company and adjacent towns before I was there, unless it be some little change in the sizes to make it more uniform.

Q. Have you any knowledge of the weight of mains used by the other gas companies in Boston than the Boston Company?

A. Yes, I have; the outside companies, such as Dorchester and the South Boston, I think it was, and it was part of Roxbury.

Q. Are those weights higher or lower?

A. They are lower.

Q. Was the Boston Company the only Boston company which gave service in the City of Boston proper at the time?

A. Yes, sir. No, they were not the only ones. The Bay State had some large mains there, and the Brookline came in with their mains.

Q. And have you any knowledge of the weights of mains as made by the Brookline Company?

A. Not specifically, but in general terms I have.

Q. Have you any knowledge of the cost of the laying of those mains?

A. Not from memory, no.

Q. That main went through some of the most congested streets in the city, did it not?

A. Very little. They did not go into the old part of Boston—the north end district, for instance. They went into the Back Bay, they went into a few of the streets in the West End, they went into the South Bay District, and ran through Boylston Street, and then up in Tremont Street; their office is there; they reached a point up there, but did not go down into the worst part of the city.

Q. And furnished gas to consumers in the vicinity of Tremont Street, did they not?

A. Not further north than West Street, I believe.

Q. And is now a part of the Association, do you call it?

A. Boston Consolidated Gas Company. This is also signed by the Chief Engineer of the Brookline Company, J. A. Gould.

6005 Q. You have spoken of a quarter of a mile of pipe and I think it was 36-inch main?

A. 30.

Q. Belonging to the Bay State Gas Company and running from its works to, I take it, a public thoroughfare or something of that kind, and which main was originally laid along the ground?

A. Above the ground.

Q. Above the ground?

A. Yes, sir.

Q. That the gas, as it entered such length of pipe, had a candle power of about 25 and it lost a considerable part of its candle power in flowing through this one-quarter mile of main. Was that so at all the periods of the year?

A. Well, I said that the gas went to the Commercial Point Works to enrich coal gas, I think you will remember. I don't think I said

that was a quarter of a mile. The part exposed, I said roughly, was about a quarter of a mile, but the length of main to the Commercial Point Works, I think, would be about three or three and a half miles. This trouble of candle power was only to an extent; whereas the main we had to cover was due to winter service and not to summer service.

Q. That is, during the summer there was no appreciable loss of candle power?

A. I don't say there wasn't an appreciable loss of candle power, but it was not a loss which made it absolutely essential to do something about, to wit, cover the main.

Q. Was there any more loss there than there would have been if that main were underground?

A. The very fact that we did cover it and had no further trouble with the loss of candle power shows plainly that was so.

Q. And during the month of July one year when it was uncovered and the month of July of the following year when it was covered, how was it?

A. I don't recall what the conditions were in the month of July. It never disturbed me, because it was winter entirely when our trouble was with it.

6006 Q. It was cold?

A. Yes, sir.

Q. If it had been in the South or somewhere where they had no cold, you would as lief have had it above the ground as under it?

A. I think in any pleasant or moderately warm weather; I don't think there would have been very much difficulty with it, no, sir.

Q. Would you have had any difficulty with it I mean, as far as concerned loss of candle power?

A. I won't say there would not have been a loss of candle power. Even wherever the weather could get as low as forty degrees, I won't say there wouldn't be a loss of candle power, and whether it would not be wise to cover the pipe even under those conditions; but under northern conditions it was wise.

Q. Have you any knowledge of what the average temperature of the earth in that part of the city was?

A. Well, I knew that at one time, but I do not believe I can tell you offhand. It is somewhere around 54, I think.

Q. You would not be far wrong in saying 55?

A. I don't know. I am only trusting my memory. I cannot say anything about that. I am speaking now of the average temperature below the frost line. Our mains were frequently surrounded by frost in Boston.

Q. How deep does the frost go in Boston?

A. It varies.

Q. Generally it goes down as low as three feet?

A. I won't say it don't possibly; but I should say it averages a foot deeper than New York, at a rough figure.

Q. Four feet?

A. I think four feet would be exceptional.

Q. Do you remember how great a loss in candle power you found in this three miles of pipe, before and after this quarter-mile section was above the ground?

A. No, I cannot give you the exact figures. I only remem-
6007 ber the fact that during the time that we had it exposed we had to use oil at our Commercial Point Works for enriching purposes for the coal gas in addition to the water gas, which was an expensive piece of business, and after we had covered it we could drop our oil.

Q. Are you prepared to give any reason for this?

A. I simply give the reason that the temperature carried the gas down to such a point that it resulted in the condensation and forced out the hydro-carbons.

Q. And these hydro-carbons being condensed precipitated themselves?

A. Yes, and were pumped out the drips. If they had remained in the gas and been carried on through and mixed with the coal gas they would have reached the consumer.

Q. So the carburetted water gas had to have added to it oil gas in a sufficient amount to keep the candle power of what you required for immediate purposes?

A. No. The oil gas was added to the low candle power coal gas as made in the retorts raising the candle power of the coal gas to a normal condition, and then they added the carburretted water gas. Now, if the candle power is sufficient from the carburetted water gas there is no necessity of putting that oil gas in the coal gas.

Q. What character of gas were you carrying through this pipe?

A. Carburetted water gas.

Q. Unenriched?

A. Oh, no, carburetted water gas.

Q. Enriched to what candle power?

A. 25.

Q. 35?

A. 25. That was about our average.

Q. Would it, in your opinion, have been possible to so reduce this carburetted water gas as to have prevented the precipitation of the hydrocarbons which gave it its illuminating power.

Mr. MATHEWSON: You mean as they were precipitated in
6008 going through this particular piece of pipe?

Mr. KIRBY: Yes.

A. I don't know of any other way of doing this.

Q. The only method you knew of and used was to add more oil so as to raise the candle power?

A. And I said I might cover the main. We covered the main so as to avoid adding that oil. But even with any additional oil our candle power dropped so low that it was necessary to cover the main irrespective of the exact quantity of oil we used.

Q. Where was the holder which contained this gas situated, relative to this exposed section of the pipe? Was it close to or far from it?

A. The holder was not over 500 feet from the meter house, and this gas passed from the holder to the meter house and then out towards the street that I have described. Now, when I come to think of it I think in addition to that 30-inch main being exposed

there were parts of the holder inlets and outlets which were exposed in the same way, but I cannot recall just how many feet that was.

Q. As a matter of fact there is generally a considerable piping around the gas holders which is exposed, is there not?

A. I don't recall any ordinarily either in a steel tank or in a brick tank.

Q. The holders themselves were not exposed to cold, were they?

A. Yes.

Q. They were not housed in as we have noted one or two small holders of the Consolidated?

A. No, our holders were a million cubic feet apiece, 1,100,000, and they were too large to house in.

Q. And the holders are not as a rule housed in to-day, are they?

A. Some comparatively modern holders are housed in in New England within my knowledge, yes, sir; and the holders in Boston holding 400,000 and 600,000 feet were housed in.

6009 Q. Comparatively small holders?

A. One three-lift holder holding 600,000 cubic feet and the others were 400,000-feet holders; they were all housed in in the city proper.

Q. For architectural beauty?

A. No, anything but that. They were done that way so they never had to clean the holder from snow, and the gas would go in and out of it without having to constantly change the resistance.

Q. That is due to the weight?

A. Due to the weight of snow, so the works would make into the holder from the station with certainty, and, in addition to that, it took very much less coal to take care of it; less attendance and less maintenance, that was the purpose.

Q. You have spoken of the depth of mains in Boston, and you said three feet. Do you mean at the bottom of the trench?

A. No, I am speaking of the top of the pipe.

Q. I presume the traffic conditions in Boston are just as severe upon mains as they are in New York?

A. There are parts of it where I think it would be just as severe.

Q. There is considerable old cobble pavement in Boston, is there not?

A. Very little of it now. The macadam pavement, there is a great deal of that; that is particularly in the Back Bay district, however, and part of the South End; but in the other parts of the city it is pitch and pebble with a concrete base to a great extent now; large block pavement.

Q. The main purpose of the New England Gas and Coke Company is the production of coke, is it not?

A. Yes.

Q. It sells gas as a by-product?

A. Yes.

Q. You have spoken of the company at Lynn, Massachusetts, and stated it does a gas and electric business, and also of the

6010 Boston company, stating that it does a gas and electric business. In the Lynn company, you have stated, it is not pos-

sible to make comparison without a proper distribution of the charges?

A. Not possible for me to make a comparison without knowing how things are distributed.

Q. You didn't have data to your hand to enable you to make such a comparison?

A. No; I took up the question of the Lynn company in a most general way, and dropped it another time outside of those cases.

Q. Now, the Boston company; will you give me the method which you pursued and the basis which you used in coming to your distribution of assets? You stated that over $700,000 of the $24,366,000 of assets is invested in the electrical part of the business?

A. I added those up when I was asked the question.

On page xx, Gas and Electric Light Commission, 1906, Public Document 35. Total assets of the books of the company $24,366,520.14, in which you will find shown the real estate, machinery, etc., as follows:

Real estate, electric	$110,000
Steam plant, electric	150,000
Electric lines	315,000
Transformer	45,000
Electric Meters	47,165
Arc lamps	23,143
Due from electric light and power	16,125

Horses, wagons, etc., I do not recall charging that in, and other gas and electric material on hand, $226,000. A part of that I considered. I only said between seven and eight hundred thousand dollars, because I did not know what it was

6011 Q. And how much of the $226,733.38 given as the value of other gas and electric material on hand did you use as an asset of the electrical business?

A. I simply took a round figure as you see between seven and eight hundred thousand dollars; but I have done it heretofore, it was not in this copy; I thought I would find it here, but I do not. I took the $226,000 out of the $24,000,000 as I remember it, and then took the amount of the electric capital in this and compared it with the total capital and then distributed the same proportion of the $226,000 into the electric and gas relatively. As I remember, that is the way I did it.

Q. What did you think the item of electric lines refers to, amounting to $315,151.90?

A. I should say that was their plant in the street.

Q. In conduits?

A. They have very little conduits. Nearly all over head in Brookline; the only underground is what I think they put in in Beacon Street for a very short distance. They have not even got an underground coming out of their own station where their wires are. Oh, yes, they also — some on Commonwealth Avenue.

Q. You have no knowledge of the accuracy of the distribution of these assets other than that which is contained in the statement?

You take it for granted that the real estate electric, and the real estate gas, with the figures given in this statement, are correct?

A. I think, after an examination of three or four months of the companies, with an idea of capitalization, that those figures were obtained for, late in 1904 and early in 1905, it is a fair apportionment, as I remember it at the time.

Q. Assuming that your conclusion is as has been given will you also state how you arrived at your figure of 4.6 cents per thousand?

A. Certainly.

Q. And what that figure means?

A. The profits from that business were about $130,000.

6012 Q. And where do you get that statement from?

A. I get that statement from Mr. Richards.

Q. How did he give it to you, and when?

A. I think he gave it to me by telephone and confirmed it by letter, I would not be sure. I have it noted by telephone from Mr. Richards on Thursday, August 16th, 1906. I don't know that that refers to every bit of information, because I have a note here that it came from a letter of such and such a date that $130,000 came from Mr. Richards as the earnings for the electric company.

Q. For what period?

A. Gas Commissioners' year ending June 30th, 1906. I also obtained the information that they sold 432,040,000 to auxiliary companies. .

Q. That you obtained in the same way?

A. Yes, I think you will find that Mr. Bemis has used almost—has used these same figures, but I will not be sure about it.

Mr. BEMIS: Substantially so on gas.

The WITNESS: Yes. They bought that from the New England Gas & Coke Company for 23 cents and sold it to the auxiliary companies at 36.02 cents. Now, I did not take the difference between 23 cents and 36.02 cents as their profit, because I happen to know from my knowledge of the company that all the gas obtained from the New England Gas & Coke Company is purified by the Consolidated Gas Company, so if they sell that gas to auxiliary gas companies they expend on it the purification, which with them amounted to 5.91 cents per thousand for purification and handling. So I added that amount to the 23 cents and took the difference between those two amounts, what it cost them for their gas and what they sold it to auxiliary companies, and obtained a profit on that amounting to $30,718. That added to the $130,000 made

6013 $160,718, which divided by the amount sold to the private consumers in the city and including what was used in their own works, which was 3,497,482,000 feet, gives 4.6 cents a thousand.

Q. Where did you get your figures dealing with the cost of purification?

A. I had general knowledge of that from my own knowledge previously and this exact figure was given to me by Mr. Richards, so I am quite familiar with the figure.

Q. Which figure did he give you?

A. 5.91.

Q. He gave you the cost per thousand?
A. For purification and handling.
Q. What do you mean by handling?
A. Oh, well, they took it into their gasholder and sent it out from their gasholder.
Q. Have you the two figures which went to make up that total of cost of purification and the cost of handling?
A. No, I have not.
Q. Your general knowledge would tell you that the cost of handling and the cost of purification would come to that amount?
A. Between six and seven cents, possibly a little over seven cents. I have the exact figure of that in 1905, when I investigated the Boston situation. I have it down to dollars and cents, and if you would like to have it I will give it to you.
Q. Is that cost of purification generally the same as it would be, say, in the works of the Consolidated Gas Company?
A. Oh, no indeed, not for a minute.
Q. Is it higher or lower?
A. Away beyond it.
Mr. MATTESON: What is away beyond it?
The WITNESS: The six or seven cents.
Q. And why is it so abnormally high?
A. Because you are having Dominion coal which is simply impregnated with sulphur from end to end, and you have to use
6014 lime for purifying. You have to have three sets of purifiers. You have to have a twenty-grain limitation by law on sulphur, and you have to put up lime purifiers and take out every trace of carbonic acid, and have to have lime boxes which have been fouled by sulphur, sulphide boxes, to take out the bi-sulphide of carbon, and then you have the boxes after that the same as we ordinarily use in the gas works in New York for water gas, the oxide boxes, and it is a very expensive operation.
Q. Does this operation free the gas from carbonic oxide?
A. Yes, substantially it does.
Q. And from carbonic acid?
A. Did I say carbonic oxide in that other statement?
Q. Yes.
A. I meant to say carbonic acid. It does remove substantially the carbonic acid, the lime does.
Q. And this information also came in over the telephone?
A. That I am giving to you now?
Q. The 5.91, is it?
A. 5.91, yes; and I think—I won't say that that particular figure was confirmed by letter, but I think so. It is substantially correct, anyhow. I might as well tell you, Mr. Kirby, if I had not that figure I would have simply subtracted 23 from the average, say 36, and got a larger amount to take off and made it more than 4.6, but because I knew the purification item, I did not do it.
Q. You divided the 4.6 up into the profit on the electrical business by dollars?
A. No; I divided the profit of the electrical business, plus the

profit of the auxiliary gas company business, and divided it by the sales, the sales in Boston of the Boston Consolidated Gas Company; in other words, if they had not had those sources of return they would have had to have 4.6 larger profits on the gas that they sold in order to pay the same dividend; that is the only point I
6015 am bringing out. They could not have sold gas for the price at which they did, an average of 92.15, and make the profit they did and pay the dividends they did. They would have had to have 97.7 cents.

Q. Then you consider it a valuable auxiliary to have an electric plant as part of the business?

A. Well, I certainly would be very glad indeed. I don't think there is any gas plant to-day that would not be very glad to have an electric plant, whereas twenty years ago they did not want to see them. Now they would be very glad to have them, but there is no electric plant in our case, if you will remember, Mr. Kirby, there is no capital involved in it.

Q. How did you get your information as to Lowell, Massachusetts, in reference to the candle power of the gas, and the amount of oil used?

A. I got it from the superintendent.

Q. In what manner?

A. I got a telegram from him; I telegraphed him and got a telegram from him. I want to say, Mr. Kirby, as a sad thing at this time, that the superintendent died on the 3rd of January.

Q. How did you get your information as to the character of the oil used at Williamsport?

A. I asked Mr. L. B. Gawtrey if he could give me some information in regard to this.

Q. And he got it; he told it to you?

A. Yes, he told me that—he found that there were no gravity requirements.

Mr. MATHEWSON: He has not been connected with the company for a considerable time, Mr. Kirby; he and his associates have sold out long ago.

The WITNESS: He still knew the superintendent, however, or manager.

6016 Mr. MATHEWSON: Yes, but he is not a manager or director of the company or even a stockholder now.

Q. You are not aware how he got the information?

A. I think he went to the present owners and got it that way. He did not remember what it was when I asked him.

Q. Some one told him and he told you?

A. Yes, that was the best information I could get.

Q. Who informed you that the gravity was 26 degrees Beaume?

A. I think I asked Mr. Higgins about that and also confirmed it in any way.

Q. Mr. Higgins is who?

A. Of the Standard Oil Company. My impression is he told me it was about 26, I will not be sure whether Mr. Gawtrey told me that or Mr. Higgins.

Mr. MATHEWSON: He is the one who had the correspondence with the Danbury man.

The WITNESS: Yes, the man who wrote the letter which was produced here.

Q. You knew Mr. Higgins before you knew he had written to Danbury?

A. Yes, I tried to find out what I could.

Mr. MATHEWSON: It was put in evidence.

Mr. KIRBY: Yes, marked for identification.

Q. Did you also obtain from Mr. Gawtrey the freight rate from here to Williamsport or from Williamsport here?

A. No, I got that from the Pennsylvania Railroad.

Q. Did Mr. Gawtrey and Mr. Higgins inform you where the oil was shipped from which went to Williamsport?

A. Yes, I think Mr. Higgins said so.

Q. And what did he tellyou?

A. That it came from Philadelphia.

6017 & 6018 Q. And was it shipped from Philadelphia to Williamsport?

A. Yes.

Q. Do you know the distance from Williamsport to Philadelphia?

A. No.

Q. Do you know the difference in distance from Williamsport to Philadelphia and from Williamsport here?

A. No, except I know one is 90 miles, I don't know how far the other is.

Q. You know that Philadelphia is 90 miles from New York?

A. Yes.

Q. Do you know the difference in freight rate from Philadelphia to Williamsport and from New York to Williamsport?

A. No.

Q. You have added to the price of the Williamsport oil a freight rate from Williamsport to New York, have you not?

A. Yes.

Q. If someone were purchasing this oil in New York do you think they would ship it from Philadelphia to Williamsport and from Williamsport to New York?

A. No, but I assumed it would come from the Philadelphia fields and not from the Texas fields. I believe it was Texas fuel oil, the oil that was used.

At 5 P. M. adjourned to Wednesday, January 23rd, 1907, at 11 A. M.

Last Exhibits:

Complainant's 335.
State's 000.
City's 236.

6019 Circuit Court of the United States, Southern District of New York.

CONSOLIDATED GAS COMPANY OF NEW YORK, Complainant,
vs.
JULIUS M. MAYER, as Attorney General of the State of New York; WILLIAM TRAVERS JEROME, as District Attorney of New York County, FREDERICK E. GUNNISON, JOHN C. DAVIES, and LUCIAN L. SHEDDEN, Constituting the New York State Commission of Gas and Electricity, and THE CITY OF NEW YORK, Defendants.

Before Arthur H. Masten, Special Master.

NEW YORK, *January* 23, 1907.

Met pursuant to adjournment.
Present: The Master, Mr. Mathewson, Mr. Burr, Mr. Kirby.

6020 WALTER R. ADDICKS, resumes the stand and further testifies:

Cross-examination by Mr. KIRBY (continued):

Q. Last night, Mr. Addicks, we were speaking about your coal coming in over at least two railroad lines. Your oil, I take it, comes in over the pipe lines of the Standard Oil Company, does it not? Comes to the coast in that way, does it not?

A. I presume it does. From all the information I have it does, Mr. Kirby. It comes some by rail as well, for aught I know.

Q. And you consider, I presume, a pipe line a cheaper means of transportation than by rail?

A. I don't know anything about that. I know, in a general way, about it, but the matter does not concern me at all.

Q. Then you do not consider it a valuable or an important point that the Standard Oil pipe line makes the Standard Oil Company practically independent of railroad rates?

A. As a matter of certainty of supply it is very valuable, but when it comes to how much of it goes through the pipe line or how much by the railroad, I have only the information I can obtain from Garfield's report. I have no other information.

Q. And you would still be of the same opinion of the importance of the pipe line if the cost of transportation by that line were greater than by railroad?

A. Yes, certainly, as far as certainty of supply is concerned; so much additional facility for getting oil.

Q. You have given us certain information, relative to the cost of oil, of the various three or four other gas companies in the City of New York, the gravity of that oil, the amount used per thousand cubic feet of gas produced, and so forth. Will you tell us
6021 in what manner you obtained that information? Was it told you, and, if so, by whom?

A. Yes, I talked with the managers of the companies.

Q. And such information was given to your individually?
A. Yes, sir; more or less.
Q. What do you mean by more or less?
A. I mean to say I got more information from some than I did from others.
Q. But it was all obtained in that way?
A. Not all obtained in that way.
Q. What was not obtained in that way?
A. Well, you ask the particular thing, and I will tell you whether I obtained it in that way or not.
Q. Here we have the Brooklyn Borough Company. You state that they use, if my notes are correct, 5.61 gallons per thousand; from whom did you obtain that information?
A. Mr. Macy in person; confirmed by memoranda.
Q. Memorandum taken by you?
A. No, sir; by Mr. Macy.
Q. You also stated, in regard to the Brooklyn Borough, that the price of their oil had been increased; how did you obtain that information?
A. Mr. Humphreys told me so.
Q. Do you know how he knew—you mean Mr. Humphreys of that company?
A. Yes. He is manager of the company. I suppose he knows.
Q. When we speak of Mr. Humphreys here we mean——
A. I talk of Dr. Humphreys then. I don't know as he is any relation or not.

Mr. MATHEWSON: That 5.61 gallons also appears in one of the State's Exhibits, from the figures.
Mr. KIRBY: Very good, then.
The WITNESS: Mr. Kirby will find the number of gallons does not appear—may I correct you, Mr. Mathewson? It does
6922 not appear in the State's Exhibit, but the number of gallons of oil appears and the number of feet of gas appears, and it is a matter of dividing the one by the other, but it does not appear as 5.61.
Mr. MATHEWSON: But it is to be deduced from the figures already in evidence.
The WITNESS: I referred to that yesterday in my testimony.

Q. How did you obtain your information of the oil used by the Kings County Company, and the Texas product?
A. I obtained it from the State's Exhibits.
Q. And also that it was furnished by the Gulf Refining Company?
A. No, I talked with the manager of the company.
Q. How did you obtain the storage capacity of the Gulf Refining Company?
A. I asked a personal friend of mine who had knowledge of the situation there, and I asked him what the storage capacity was, and he told me he thought it was about that, and I stated that same thing.

Q. Have you any knowledge as to where the Western gas companies mentioned in the State's Exhibits purchased their oil from?

Mr. MATHEWSON: Which State's exhibit is that?

Mr. KIRBY: The State's exhibit giving the amount of oil and price thereof, the one to which reference has been made, the one stating the number of gallons of oil used, the number of cubic feet of gas produced, the one put in by the Secretary of the Commission—I mean the Western New York companies.

A. I don't know whether I can really state where they do get it from. I don't recall at the moment.

6023 Q. You have no knowledge of freight rates to these points of the use of gas oil, from the place of purchase, have you?

A. No. The information is given in the Garfield report, various freight rates from various points, I know that, but I have not had occasion to use it.

Q. Referring to page 5951 of your testimony, where you give the factors which you consider are involved in the comparison relating to oil used by the different companies, I note thirteen factors.

A. Some of the factors.

Q. Referring to the second one specifically, "whether the candle power is taken on a bar photometer or whether on a Lowe jet photometer, or a Jones jet photometer, or a Knox jet photometer, which is similar to the Jones? If taken on a bar photometer, whether the results are corrected for temperature and pressure atmosphere?" On what kind of a photometer are the tests of the Consolidated Gas Company taken?

A. The recorded tests, on a bar photometer.

Q. Those tests which are set down in your statement on pages 5934, 5933, 5932, 5931, and 5930; have you any knowledge as to how the candle power at stations was obtained? Was that by the use of the bar photometer?

A. Yes, I think that is true, Mr. Kirby.

Q. And do you know whether or not they were corrected for temperature and atmospheric pressure?

A. I think they were, but I don't know how far back they were. I don't know about 1902, but I think you will find the record of 1904 and 1905 corrected. I won't say as to 1902.

Q. Do you know as to December, 1905?

A. No, I can't tell you definitely. I think they were all corrected.

Q. Do you know how such tests are made by the city?

A. Yes.

6024 Q. How are they made?

A. They are corrected for temperature.

Q. Are they taken upon a bar photometer?

A. Yes, sir, I so understood it. They would be worthless if they were not. The law requires it so, I suppose they are obeying the law.

Q. Do you know whether the tests at the city stations and at the works of the Consolidated Gas Company were taken with the same kind of apparatus and in the same manner, with the same corrections and with the same kind of a burner?

A. Well, I think they are. I think they are both—whether they are both 100-inch bars or not I cannot say; some may be 60, some 100. I think they are taken with the same number of Bray burner; if I recall correctly it was No. 6. That burner is not the same as used in Massachusetts. In Massachusetts they use the Sugg table top burner, which is either No. 5 or No. 6, so they differ in that respect, and with lower candle-power of coal gas in Massachusetts they use the Argand burner, but I think the practice in New York is not to use the Argand burner under any circumstances.

Q. The tests for candle-power in New York City are, of course, for candle-power above 20 and have been for many years back?

A. Yes.

Q. Then you are not positive that the tests are made in the same manner, but are not prepared to state they are not made in the same manner?

A. I have not specifically examined the record in regard to the tests you refer to. If I had examined them specifically I would say unhesitatingly, yes, but as I have not specifically examined them I qualify it to that extent. I have no doubt they are the corrected candle power.

Q. You consider they are close enough in their method to use as a basis of comparison between candle-power at the station and
6025 candle-power at the works, do you not?

A. Well, they are the records that are on record, as exhibiting the candle-power. I am merely taking the conditions as they appear.

Q. You have used such tests in the table which you here presented, have you not?

A. Yes, I have simply taken the records that Mr. Edgerton has put into the case. He put the candle-powers in himself, and I have taken those and added the candle-powers taken by the city, and used those put in by Mr. Edgerton and by the city.

Q. Mr. Edgerton put in no table for December, 1905?

A. No; with that qualification.

Q. That is entirely prepared by you?

A. Yes, it is simply a copy of the same report that Mr. Edgerton was supposed to put in. He made a comparison originally in that same way, and I simply followed his lead.

Q. Going to our fifth factor here, "whether the make of gas is corrected for temperature of the gas passing through the station meter, and if so, how such temperatures were obtained and the number and nature of the readings?" I take it that the production of gas at any station, as given by the Consolidated Gas Company, is not merely the reading of the station meters, but that it is the reading corrected to what it would be if the gas, instead of being at the temperature where it was when it passed through the meter, was at the same standard temperature assumed by you?

A. Sixty degrees.

Q. Sixty degrees Fahrenheit. What is the average temperature of gas as it passes through the station meter in the works of the Consolidated Gas Company? Is it above eighty?

A. I don't recall, Mr. Kirby, what the temperatures are; they were different for different works.

Q. Would you think it was higher than eighty in any one instance?

6026 A. Well, if the thermometer was one hundred degrees in the summer, it might readily be above eighty.

Q. Then the outside temperature has considerable effect upon the gas as it comes from the gasmaking apparatus and passes into the holder?

A. I think it has some effect, yes. You have all the windows open in the summer. In the winter perhaps it may or may not have an effect; it depends on how thoroughly the various buildings are maintained in temperature by artificial means.

Q. Would gas coming directly from the gasmaking apparatus be as quickly affected by outside temperatures as to have some decided effect upon the temperature of the gas as it passed through the station meter?

A. Well, the effect—won't you read that question?

Question read by stenographer.

A. I don't know whether you intend to cover as broad a field with that question as you would seem to, to my mind. Will you put that into another form so as not to make it quite so complicated in its reply. I will explain to you why, if you want me to.

Q. What would you consider the temperature of gas would be as it comes from the gasmaking apparatus before it passes through the station meter or before it starts on its way to the station meter?

A. 1600 degrees; in a water gas plant.

Q. Now, it loses a very large part of that temperature, does it not, before it gets to the station meter?

A. Yes.

Q. So that if there were no atmospheric influences, no change of temperature, rather, assuming, say, that the temperature remains constant at 60 degrees?

A. In the atmosphere?

Q. In the atmosphere; what would you consider the aver-

6027 age temperature would be when it reached the station meter?

A. Well, of course, that depends upon what you condense and what your scrubbing capacity might be for a given make of gas.

Q. Well, in a properly proportioned plant?

A. And in the winter?

Q. I say we will assume outside temperature of 60 degrees?

A. Yes.

Q. Constant?

A. Then I am inclined to think it would be—of course, it is hypothetical, but I am inclined to think it would be somewhere between 60 and 70 degrees.

Q. If instead of having an outside temperature of 60 degrees we had an outside summer temperature of 100 degrees, or even more; would the temperature of that gas be materially increased?

A. I don't know.

Q. Then you are not as strongly now of the impression as you

were a few moments ago that the outside temperature would have considerable effect upon——

A. Just as strong.

Q. Would it or would it not have it?

A. I think it would have an effect, but you asked what the average temperature would be. I never met with just those conditions, and I cannot recall exactly what the effect would be with 100 or 120 as constant temperature, or even 90.

Q. Would it raise it two degrees, do you think?

A. I really don't know what effect it would have. It would depend on how much water you use in the condensers, how close your meter was to the condensers, as to how quickly you measured it after the gas had been condensed to any temperature that you choose to carry it. If you choose to carry it down to sixty you would have to have water for this outside temperature. If you could have water of such a low temperature that you could bring it to sixty,

6028 and if you should measure it at once you would have the measurement of sixty, it wouldn't make any difference what happened to the gas after it passed to the meter.

Q. The outside temperature, however, you consider has a material effect upon the gas as it passes to the meter?

A. I think the average temperature, as a rule, of gases in the summer time would be higher than they were in the winter time in any well regulated gas works.

Q. That is due to the temperature of the outside air?

A. That is due to the fact that the temperature of the outside air is higher in summer than it is in winter.

Q. Is there any other point in the distribution of illuminating gas where the amount thereof is measured by the meter?

A. Yes.

Q. Where is that?

A. On the premises of the consumer.

Q. Is that corrected for temperature?

A. It is not.

Q. Have you ever made any investigations to ascertain what the average temperature would be of the gas passing through the consumer's meter?

A. I have.

Q. Is it above or below 60 degrees?

A. I will qualify that statement—not of the average gas passing through, but what the temperature was in some particular cases.

Q. Yes.

A. I don't recall what the figures are.

Q. As a matter of fact, most meters are placed in a temperature warmer than that of the outside air, are they not? In cellars of houses and hallways of apartment houses?

Mr. MATHEWSON: Doesn't that depend on the season of the year?

Mr. KIRBY: Yes, very much so; warmer in winter, cooler in summer.

6029 A. I think their usual places may or may not; they are certainly apt to be warmer than the outside air, but not necessarily as warm as the remainder of the house.

Q. And we endeavor to keep our houses here at about 70 degrees, don't we?

A. That depends on whether you are an Englishman, an American, a mixture or a countryman, or have been brought up in the city.

Q. Except in the room where this hearing takes place?

A. I think sixty-five is more agreeable than seventy, personally.

Q. Sixth. "Whether results are figured on the make, corrected or uncorrected, or on the scale?"

A. If you make it "sales" it will be better. Of course, those sales also would be qualified as to whether the meters were cared for by the gas company or whether they were neglected. If they were neglected that would be apt to be to the benefit of the consumer.

Q. Seventh. "Percentage of unaccounted-for gas" is a corollary following from 5th and 6th, is it not?

A. Yes; they would have some effect, one with each other; but on the other hand the actual condition of the system might have some effect when you based it on the actual cost of oil for what you obtained so many thousand feet of sales, the per cent. unaccounted for would be possibly considered. That is the reason I probably put that in there.

Q. Going to No. 9: The gravity of oil has a bearing which depends somewhat on the atmospheric temperature, in other words, upon whether the oil which is used produces a fixed gas at all normal temperatures and pressures met with in the given locality. Will you kindly explain that a little more fully?

A. Well, simply in this way. Down in Georgia I should
6030 think that you would be apt to use a very much heavier oil, one that had a larger percentage of vapors in the gas than you would if you were in the latitude of New York City.

Q. And for what reason?

A. Well, it is a very complicated question to my mind.

Q. You do not mean my question? You mean your answer?

A. No, I do not mean my answer. I mean your question involves a complicated proposition. My view of gas is that it has various gases, vapors, from hydro-carbon products, some of the constituents of which may be of gas at a certain temperature and which, when you get into a lower temperature, may be deposited from two causes, either that they naturally go to a fluid state at a lower temperature, or the gas may contain many vapors that when the temperature is lowered they drop out as in liquid form, the same way as in the atmosphere when you get a certain condensation of aqueous vapor you drop out the rain in the lower temperature of the atmosphere. I am not prepared to state definitely what the causes of the phenomenon may be. I don't know any more than I know what electricity is, possibly.

Q. It simply comes to this, does it not, that you believe that in a place where the mean temperature is higher than some other place where the mean temperature is lower, that you can use an oil of lower specific gravity, that is, a heavier oil?

A. As we should meet it in the gas business, yes; and to make it specific the products from that oil, whatever they may be, in the higher temperatures may be vapors that can be carried by the gas

and burned, whereas in a lower temperature they would be apt to be deposited in the pipes and be pumped from the drips as liquid hydrocarbon.

Q. Now, of course, this has nothing to do with the actual
6031 make of the gas. The temperature in the, say Lowe, water gas apparatus, or in the apparatus of whatever name it may be, is the same, whether it is made in Georgia or Montreal is it not?

A. I would rather have you specify what the name of the other apparatus is.

Q. I mean comparing Lowe with Lowe, or Jones with Jones, or whatever the other names may be, size for size?

A. I think in general we will assume the same apparatus. Of course, I would not like you to assume the retort process and the cupola process. I am giving you a general proposition. When you come to consider the results obtained by this oil that you are choosing, as to whether it is gas made from the cupola process or made from the retort process, I think other conditions arise which I should have to make as my fourteenth proposition, perhaps.

Q. Then, assuming it was made with no particular apparatus, we get our gas to the meter where you would have the readings corrected to a temperature of 60 degrees and then into the holder, and then out through the mains, through the service mains to the service, to the consumer. It is, in your opinion, by reason of the low temperature in this northern climate that an oil which would be proper to be used in the South would not be advisable to be used in the North; that is, something happens to the gas after it comes from the manufacturing apparatus; am I right in that?

A. In a general way.

Q. Can you, in a general way, tell me what does happen?

A. No, I can't tell you what happens to the gas in pipes. I can only tell you by my personal experience what my judgment is. I cannot tell you what happens. I never saw gas except when it was hot, in the gas machine; we never see it from the time we make it until we burn it.

Q. Will you tell me what your personal experience and
6032 judgment is?

A. It is that a low gravity oil will not produce a stable product under a given temperature and pressure that a higher gravity oil will within certain limits.

Q. What leads you to that conclusion?

A. My experience up to date, Mr. Kirby.

Q. What have you noticed which has given the experience of which you speak? Is it such loss in candle power which you referred to yesterday, or anything else in addition to that, and if so, what?

A. I cannot specify particularly except my general knowledge and general experience, accumulations of past years.

Mr. MATHEWSON: Isn't that the summary of the whole thing? The estimate is that the candle power drops where the low gravity oil is used more easily and more quickly in low temperatures than where the high gravity oil is used.

Mr. KIRBY: I ask whether he can give me any reasons other than those he has already mentioned.

The MASTER: He has answered, and says that his general experience is all he can go by.

Mr. KIRBY: I now have his answer.

The WITNESS: I understand he wanted to know how I reached this conclusion. I have given him an answer from information gleaned from time to time, not by one specific instance or necessarily a series of specific instances. It is an accumulation of experience and knowledge that leads me to that conclusion.

Q. You are familiar with the Pintsch system of making illuminating gas?

A. I know what it is, yes.

Q. This gas is generally used in railway lighting, I be-
6033 lieve?

A. Its principal use in this country, so far as I know it.

Q. And as such it is subjected to rather low temperatures, is it not, in the winter time?

A. In the trains, probably.

Q. Have you ever made any experiments on loss of candle power in this gas to such temperature changes?

A. Mr. Kirby—not answering your question, but you have not stated that it was also under a pressure of several atmospheres——

Q. Quite true.

A. But I have made no such experiments personally, no.

Q. Now, the tenth factor which you state is as follows:

"A gravity oil which is obtained by very heavy tar products mixed with light gasoline products must give different results from a homeogeneous oil which consists of constituents that by their closer relationship by gravity are perhaps more easily heated or acted upon more similarly by the same temperatures, such temperatures as are met with in gas manufacture."

Will you explain to me what you mean by a "gravity oil" obtained by very heavy tar products mixed with light gasoline products"?

A. I referred to a mixture of the later products in the still with those of the earliest products in the still.

Q. And such oil if fractionated would show what?

A. I don't know what it would show if fractionated.

Q. If you had an oil of that character or an oil which you desired to find out whether it was of that character, to what test would you subject it for the purpose?

A. I don't know as I am sufficiently familiar with such
6034 an oil to say just what the results would be. I only referred to the mere question of the higher and lower results of distillation from the fact that if you had a very high gravity product and put that through the gas machine, and you found that certain heats in the generator would handle it best by practice, and you took the other part of that product and put it in the gas machine you would probably find that different heats were required to handle that. Now, then, take those two products and put them in the gas machine simultaneously. I think you would have such extremes

that you would not get satisfactory results out of the product; that is all I meant by that statement.

Q. Have *you* any of the oils which you have made mention of as those used by the various companies, been of a character that you have just referred to, that is an oil which is obtained by very heavy tar products mixed with light gasoline products, or don't you know?

A. Well, I understood that those that have no gravity mentioned are liable to that situation; whether they are in that situation, I don't know, but in one case I understand that they discovered there was considerable of the very heavy material.

Q. How was that discovery made?

A. Well, I don't know definitely how the discovery was made.

Q. Was an analysis made of the oil?

A. I will not say as to that.

Q. If an analysis had been made of the oil, you are not able to state wherein such analysis would differ from that made of what you call homogeneous oil?

A. Well, I think you would find possibly something like this, you would probably find two products, one possibly of all gasolene and the other all very heavy gravity oil; that is what I would expect to find.

6035 Q. Gasolene?

A. Is of very light gravity.

Q. Gasolene is more expensive than gas oil, is it not?

A. Yes.

Q. Than the heavier products of the distillation, is it not?

A. Than the heavier products?

Q. Yes.

A. Yes, I so understand. I have had my principal information from your own witnesses in that regard.

Q. You have no reason to doubt it, have you?

A. No.

Q. Just what do you mean by homogen-ous oil?

A. Well, a homogeneous oil is of the nature of one the opposite to what I have mentioned, that is to say, it is the result of distillation.

Q. One which when fractionated would show a very small range of gravities?

A. I cannot say in various oils exactly what the range would be, but relatively very much different from the very highest gravities and very lowest gravities; I cannot give you the extremes.

Q. But one which was confined, say, if we made ten fractionations and found that such showed a range of over five degrees, Beaume gravity, and one which for the same number of fractionations showed a range of over ten degrees, you would consider the first one more homogeneous than the second, would you not?

A. No, I don't know that I would. I should think they might be equally homogeneous, the two oils. The mere question of having in the distillation—take any gravity, say, forty gravity, you might have forty-two or forty-four gravity, mixed with thirty-six, and they may be both straight run homogeneous oils, and might average forty gravity.

Q. Supposing we had one averaging forty gravity, and we had

forty-two, forty-four, forty-six, forty-eight and thirty-eight,
6036 thirty-six, thirty-four and thirty-two, would that be?

A. Those are not very wide ranges.

Q. Would that be as homogeneous an oil as the first one you referred to?

A. Well, that perhaps might differ with the various oils; I don't know what the upper or lower limits might be.

Q. Then a wide range to you would have but little to do with the homogeneous character of the oil?

A. Yes, but I think the very low range might have some of these very heavy products in possibly.

Q. Then it comes down to whether or not the oil contains these heavier products of which you speak?

A. Well, more or less, and what the gravity would be of the heavier products.

Q. And these heavier products——

A. I am referring now, of course—it would depend somewhat upon what the gravity of oil is; of course, if you have a low gravity oil, you have more of those products, but if you have a lighter oil you have less.

Q. Where do you consider the heavier products commence as regards to degrees, Beaume test?

A. I am not prepared to say.

Q. Twenty-four degrees?

A. I am not prepared to state at the moment. I have not it in mind.

Q. These heavy tar products you consider are deleterious in a gas oil?

A. That they are in a gas oil.

Q. Yes.

A. The products that are not gassified in the gas generator, I doubt very much if they are present to any extent in the ordinary lighter grade gas oil.

Q. And should not be?

A. Well, preferably not. I should think.

Q. Do these heavy products indicate themselves in any way in the manufacture of gas, other than in the candle-power of the gas produced?

A. Yes, I think they would be apt to indicate themselves in the distribution system and in the gas meters.

Q. In what way?

A. Condensation.

6037 Q. Condensation which would be what?

A. Hydro-carbons; I don't know what they would be.

Q. Tar?

A. Various hydro-carbons.

Q. That which is commonly called tar, oil tar?

A. I don't know—well, what is usually called drip oil.

Q. If there were a large proportion of this drip oil in the form of precipitated hydro-carbon, you would consider that the oil you were using was not proper for the purpose?

A. Or not proper apparatus, perhaps, to handle it.

Q. It might be one or might be the other or might be both?

A. Possibly.

Q. Now, the reason that 73-degree Able oil is not sold in this State is because the laws of New York require a test higher than that which 73-degree Able oil can stand?

A. That is my understanding. I believe the laws are not so severe over on the other side.

Mr. MATHEWSON: It may not be the only reason that it is not sold here; it may be a matter of price, because they sell it cheaper abroad than they sell it here, according to Mr. Emery.

The WITNESS: As a matter of fact, you know, Mr. Kirby, gasolene is sold under certain conditions, but as I understand it, 73 Able is sold for illuminating, in lamps.

Q. The statutes of the State of New York in regard to the use of illuminants in lamps or for such purposes are such that the fire test to which the oil is to be subjected is higher than that which 73 Able oil will stand?

A. I understand that is so, but I have not got the exact figures.

Q. And it is your information, is it not, that the requirements of the foreign market for the use of oil for such purposes
6038 are not as stringent as those of this country, especially New York?

A. That is my one understanding. I am not stating it as a definite fact; it is my belief, however.

Q. Did I understand you to state in reference to your contract with the Standard Oil Company that you would have had to pay a higher price if your contract did not contain a clause that all of your oil would be taken from the Standard Oil?

A. I have always understood that with the Standard Oil Company that their contracts are based on all the product; I am not acquainted with any other contract with the Standard except on that basis.

Q. So if you had taken part of your oil from the Standard, you consider you would have to pay a higher price therefor than if you had taken all?

A. Yes, with other disadvantages.

Q. I take it that if you had offered to you for gas making purposes two oils, one of 34 degrees and the other of 44½ degrees, you would prefer the 44½ degrees, wouldn't you?

A. At the same price?

Q. Yes, at the same price?

A. Under New York conditions?

Q. Under New York conditions?

A. At the same time of the year?

Q. At the same time of the year?

A. Possibly; may be yes, and may be no.

Q. What is the specific gravity of the naphtha which you use?

A. I do not think any naphtha has been used since I have been here.

Q. It was formerly considered that naphtha was desirable if not absolutely necessary to make a high candle power gas, was it not?

A. Well, that depends upon the apparatus you are using. I cannot answer that yes, nor can I answer it no.

Q. To do away with use of naphtha, an apparatus has been designed so as to use a lower gravity oil, has there not?

A. No, that was not the reason for it.

6039 Q. But by change of design of the apparatus it becomes possible to use a lower gravity oil than naphtha with a relatively better result?

A. Some apparatus may improve the result with low gravity oil and other apparatus do not have to be changed if you use naphtha or other oils.

Q. Which apparatus do you use?

A. The cupola superheater type, reversed steam.

Q. Is this kind of apparatus one in which you can use naphtha and low gravity oil with equal advantage or is it one which gives better results with the low gravity oil or naphtha?

A. I think that it is a piece of apparatus that you can generally get better results from any kind of oil than any other apparatus except possibly the high gravity naphtha of ten or fifteen years ago; in that case you may get equal results probably if not better with some other apparatus.

Q. What was the character of the apparatus in 1902?

A. Where.

Q. At the 21st Street plant?

A. Retort process, and some Lowe machines.

Q. Were the Lowe machines different in any way from those in use now?

A. They are in use now.

Q. The same identical machines?

A. Yes.

Q. Any additions there?

A. Yes.

Q. The same kind and character of machine?

A. The same character but not the same dimension machine.

Q. Larger?

A. Smaller.

Q. Just as efficient?

A. Well, I think a smaller generator is more easily cleaned than a larger one; to that extent, possibly, a small machine may be better in the long run, with repairs and from other considerations. The primary difference, Mr. Kirby, the one is twelve foot and the other is thirteen. There is one foot difference in the generators.

6040 Q. But this difference in size would produce no difference in the relative efficiency of the two sizes, would it?

A. I have not analyzed the oil results on the two sizes carefully enough to state that as an absolute statement, which I would rather make here.

Q. In 1902 some naphtha was used in the 21st Street station, was it not?

A. Apparently, yes.

Q. Do you know the gravity of this naphtha?

A. I do not recall it, no. I don't know whether it is on the records or not, but if it is on the records and I saw it, I don't recall it.

Q. Well, you are not prepared to state that if you had your choice of two oils, each of the same price, one of 44 and — other of 34 degrees that you would take the 44 degrees in preference to the 34?

A. You have not qualified your question sufficiently for me to answer the question, so I am not prepared to state.

Q. Under the identical conditions as to delivery—if you had two contracts offered you, one such as you have at the present time, mentioning 28 degree and 34 degree oil, and another one similar, only with the substitution of 38 degree and 44 degree instead of 28 and 34 degree?

A. You have not got enough elements in it.

Q. Each offered by the Standard Oil Company?

A. I am much obliged to you for that, but you would have to qualify it further.

Q. You do not think that is sufficient for an answer in that form?

A. No, sir.

Q. And to be used for the same purposes as that to which you put the 28 and 34 degree oil, which you now obtain?

A. If you will add the question of average temperature or minimum temperature, etc., I will try to answer you.

Q. Well, used here in the City of New York by your com-
6041 pany. I don't think I can go any further than to say conditions absolutely the same in all respects?

A. I will not give you a definite and absolute answer to that, specifically as to the use of one or the other. My judgment is that the 44 gravity oil would probably give better results during the winter months than the 34 degree, and the 34 gravity oil, or even lower would give substantially good results in the summer time. That is the best I can answer your question. At the same price, as between 34 and 44 degrees it would be hard for me to choose, in the summer time. In the winter time I think the 44 degree would possibly be better. I want to qualify it further. The question of danger of handling oil might be an element in the choice, as to danger from accidental ignition in the tank.

Q. Upon whom is the risk of handling under your present contract?

A. After we receive the oil the risk is on us; before we receive the oil the risk is on the contractor.

Q. You have stored naphtha upon your plants, have you not?

A. We have underground tanks principally.

Q. Have you ever had any fires therefrom?

A. Yes, sir, very serious.

Q. In New York City?

A. Yes, sir, in New York City.

Q. How recently?

A. A number of years ago.

Q. Do you know where?

Mr. MATHEWSON: We have not had any since perhaps 1902, Mr. Kirby, and could not have had any.

The WITNESS: I cannot give you the date; it was before the time I was here.

Q. It is more than ten years ago, is it not?

A. I cannot say more than ten years ago; I should say
6042 it was probably ten years ago, but I do not know definitely. It occurred at the 44th Street works.

Q. Now, you have spoken of the deterring influences which you consider unsurmountable in your getting oil from smaller companies, and have stated you would have to skirmish around the country in an endeavor so to do?

A. I did not say skirmish around the country.

Mr. BURR: Mr. Mathewson stated that in his question.

The WITNESS: Mr. Mathewson asked me that question.

Q. Well, it has been so hard to distinguish between the questions and answers that I may have been misled. I suppose such skirmishing around would cost money?

A. I think if we had to go around we would have had to have buyers out, and facilities to take the oil we bought in those small quantities, and try to ship it to New York. It would be quite an undertaking.

Q. And quite an expense.

A. Yes, it would be quite an expense.

Q. Let us come to this fleet of boats and the tanks and so forth in which to store your oil, if you made deliveries of such oil on your own account rather than had the Standard Oil Company do it. Can you give me in a little more detail than you have such estimate?

A. I would be very glad to answer any question you may wish to put to me on that subject.

Q. Well, you have the details all worked out, haven't you?

A. I have my rough notes of the details, yes, sir.

Q. Well, inasmuch as you cannot give us the information without questions as to each branch of it, we will have to take it up a
6043 little longer than we might do otherwise. How many barges did you consider would be necessary?

A. That depends somewhat on whether the storage is in Jersey or in Manhattan.

Q. We will assume, first, the storage in Jersey, and then the storage in Manhattan. First give the number for the Jersey storage, and then the number for the Manhattan storage?

A. Probably five in one case and ten in the other.

Q. Five where the storage was in Jersey?

A. Five in Manhattan and ten in Jersey.

Q. And how large would each barge be?

A. Not exceeding 200,000 gallons.

Q. Is that the size which the Standard Oil Company uses in making deliveries to you?

A. No, I think they use various sized barges.

Q. Do you know whether they have any barge of that size?

A. Yes, they have barges running larger than that; they also have some smaller.

Q. They use barges of larger capacity than this in making delivery to your works, don't they?

A. Some of them, yes, sir.

Q. Do you know how many barges they have detailed for the purpose of supplying your plants?

A. No.

Q. Is it as many as five?

A. I think—how many they have?

Q. Yes?

A. No, I cannot tell you how many they have; they have various ones; we get one barge and then we get another, and then another; I don't know what business they are in other than our own.

Q. Was it upon the number of barges which the Standard Oil needed for your purpose that you based your estimate, or was it, upon other information which you had?

A. I based it on my own judgment to a great extent.

Q. You have never had any experience in transporting
6044 goods by water, have you?

A. Yes, I have had some experience.

Q. What experience have you had?

A. I have transported water-gas tar by water.

Q. Where and when?

A. Some few cargoes in Boston from one works to the other.

Q. Other than that though, you have had no experience, have you?

A. In transporting on water? I have been on the water a great deal and had a good deal of experience in boats and their management, etc., quite a little.

Q. Yes, we can imagine what such experience has been.

A. I have been in command of a vessel in New York harbor and have had some experience.

Q. How many tugs did you think would be needed for this purpose?

A. Three in one case, probably, and five in the other, the smaller number of tugs can go with the smaller number of barges.

Q. Did you estimate that this fleet would be large enough to also take care of the oil to be furnished to the other companies on the island of Manhattan?

A. I figured on 100,000,000 gallons, which would include those, but reduced to cents per gallon, which would, therefore, only involve each one independently of the other; that is to say, it would be the average price per gallon and they would all get the benefit of the increased quantity naturally; that is as far as transportation is concerned.

Q. Did you figure out the cost of these barges yourself?

A. Yes, I figured out my estimate of the value of the barges.

Q. Did you obtain bids for the same?

A. I did not obtain formal bids, no.

Q. Did you obtain information from shipbuilders as to the cost of building, or did you figure it out yourself?

A. I got information from two sources of the probable cost of barges such as I figured.

6045 Q. Shipbuilders?

A. Yes.

Q. How great a storage capacity did you give?
A. Three months.
Q. And for what degree of oil?
A. Either, the same storage capacity would do for either.
Q. Yes, one would be larger than the other, would it not?
A. No.
Q. You would not use the same number of gallons of 34 degree as you would of 28, would you?
A. I would not store it that way; I would have three months' supply on hand for the maximum day's consumption irrespective of the degree of oil; that would not influence me one way or the other.
Q. But either Mr. Mathewson in his question, or you in your answer, inferred that a higher degree oil would necessitate less storage capacity, as you had to use less of it for the purpose?
A. Well, that would not be measurable in this calculation.
Q. Then that really is not an important element which enters into consideration of the relative merits of the 34 and 28 degree oil?
A. The variations in the sales might readily compensate for any difference in oil. I merely took the amount of oil used in a given three months; as a matter of fact I do not recall what gravity it was at the time, but that would not influence me particularly. A tank more or less would not be of material difference.
Q. Nor would that be so if you used naphtha instead of gas oil?
A. No, I don't think that would be an element worthy of consideration, except so far as naphtha is concerned, of course, the danger of storage when naphtha is concerned is greater than in the lower gravities.
Q. There is no reason why gas oil should not be stored in the Island of Manhattan, is there, so far as fire is concerned?
A. In small quantities, in reasonable quantities. I should
6046 be very sorry if it were considered an improper thing to store it, because it is an essintial thing for us to store it. But in very large quantities, such as three months' supply I certainly would not recommend the company to do it.

By Mr. MATHEWSON:

Q. Did your estimate as you have given it, include the additional precautions, etc.,which would be required for naphtha if you were storing naphtha?
A. As a matter of fact it would make no difference to me in the precautions I would take in handling either, but I think the risk would be greater than with the other; I would take the same precautions in either case.

By Mr. KIRBY:

Q. If gas oil as a matter of fact is thrown upon a fire produced by the burning of wood, say, it would put it out, would it not?
A. I never tried it. I never would like to. I never fool with oil in such a way. I suppose it depends upon the quantity of oil and the size of the fire, you might have 100,000 gallons of oil and drop it upon a small fire and put it out.

Mr. MATHEWSON: So with gas running out of a burner tip, it will put out a match for the moment.

The WITNESS: Yes.

Q. Do you know what the flashing point of gas oil is?

A. Yes, I think it is less than 120—pardon me, no, I am thinking of something else. Somewhere around 140 and 150, 34-degree oil is. I don't know what 28 degree is. That is my impression.

Q. I think it is about 200, is it not?

A. I think I have the exact figures somewhere, but I am depending upon memory.

6047 By Mr. MATHEWSON:

Q. Does it not depend upon the character of the 34-degree oil to some extent? Will all 34-degree oil flash at the same point?

A. No, I don't think it would necessarily. It depends upon where the oil is obtained, I should think.

By Mr. KIRBY:

Q. You have never made any experiments?

A. I personally, no.

Q. And there never has been any made by those in the employ of the Consolidated Gas Company?

A. I made the inquiry in regard to the flashing point of our 34 gravity oil at the time I was investigating the flashing point of 73 Able, and my impression is it was something between 140 and 150, the oil that we are using at the present time, that is my impression, as against 112 for the 73 Able.

Q. In the tanks which you would erect for the storage capacity of this oil did you figure in the cost of land upon which they would be situated?

A. I did.

Q. You did not consider that the Consolidated Gas Company had any land to-day which might be used for that purpose?

A. No. If such land was utilized I figured the value of the land at present that we have, I figured it on the basis of our present land, not on the purchase of any land or the price we would have to pay, but on the basis of the value of our present land. Whether we would have any piece of land to use, I don't think we would have any to use in that direction.

Q. Have you investigated the sale of residuals and the prices obtained therefor elsewhere than those sold by the Consolidated Gas Company for the purpose of making a comparison with the prices obtained by you?

6048 Mr. MATHEWSON: You mean elsewhere than in New York City.

Mr. KIRBY: Either in New York City or out of it.

A. I have made comparisons with Boston and Boston experience.

Q. From such investigations as you have made do you consider the result of the Barrett contract for your coal tar and ammoniacal liquor a good one for the company?

A. At the time in which I considered it, as I recall, it resulted in higher returns than we would have obtained in Boston, and it was more advantageous to the company than the Boston situation.

Q. I note in Field's Analysis of Accounts, etc., for 1905, that the London gas companies obtained an average of 48 cents per ton of coal for ammonia. Do you consider that a better or worse result than the Consolidated Company obtained?

Mr. MATHEWSON: Is that very important, Mr. Master, what they got in London? It does not seem to me that that touches us very closely.

The MASTER: Well, I will let him go into the question of what they get in London, but it seems to me that particular question asked of the witness is not of very great value. If the London price appears to be more than the New York price, the question as to whether he considers it better or worse is not of very great importance, is it?

Mr. KIRBY: Well, I presume that is a conclusion, and rather an obvious one.

The MASTER: You can ask him if he knows whether they got that price in London and whether that affects his opinion as
6049 to the advantageousness or reasonableness of his contract here.

Q. Have you any reason to doubt the statement which I make, first in regard to tar, that the Gas Light Company, Commercial Company and South Metropolitan Company obtain an average of 1.37 pence for their tar and 2.09 pence for their ammoniacal liquor and sulphate of ammonia per thousand cubic feet of gas sold? You have no reason to doubt that statement, have you? If so, I hand you Field's Analysis and show you the figures therein (handing book).

A. I am perfectly willing to take your statement, if those are the figures. I don't know whether they are or are not, of course. That is about 2.74 cents and 4.18 cents per thousand.

Q. Yes.

A. But that would not modify my opinion; no, sir.

Q. That tar is not per thousand, that is per gallon.

A. You said per thousand.

Q. The ammoniacal liquor and sulphate of ammonia is per thousand, and the coal tar is per gallon.

A. I first understood the tar was per gallon, and then afterwards that you said per thousand.

Mr. MATHEWSON: Look at the book.

Mr. KIRBY: Yes, I thought I had expressed it as it is stated here. Put the question in this way.

Q. The London Metropolitan companies, as set down in Field's Analysis of Accounts, for the year 1905, received an average of 1.37 pence per gallon for tar and an average of 2.09 pence for ammoniacal liquor and sulphate of ammonia per thousand cubic feet of gas sold.

A. That seems to be correct.

Q. And your answer is that that fact does not, in any way, change your opinion?

6050 A. I think the situation in London and the situation in New York are not such that I can compare them as to results. I am already on record in that same direction.

Mr. MATHEWSON: And I suppose you understand, Mr. Kirby, that when you speak of gallons in Field's Analysis, you mean an Imperial gallon, which is 20 per cent. larger than the American gallon.

Mr. KIRBY: I think we have threshed that out to the end.

Mr. MATHEWSON: There is nothing to thresh out.

Mr. KIRBY: That point was taken up with Professor Bemis, or someone in your cross-examination, as to the amount per gallon, and it has been spoken of in previous testimony in this case as to the statement in Field's analysis.

Mr. MATHEWSON: Yes, I am simply calling attention that that gallon is different, and no comparison is correct unless that is taken into account.

Q. Coke contains about the same amount of carbon as anthracite coal, doesn't it?

A. No, I think not.

Q. How much less?

A. There is more ash in coke than there is in anthracite coal, as I recall it.

Q. Any appreciable amount?

A. Well, that is pretty hard—I am not a walking text book, I should say 4 or 5 per cent. diference.

Q. But you think that is true with domestic anthracite, I mean by that, the free burning coal, and not the hard Lehigh, which might be used for other than domestic purposes?

A. I think the free burning Lackawanna coals are apt to have more ash in them than the harder coals. Perhaps the harder coals might have more slate in them, but my impression is there

6051 is several per cent. difference in the amount of ash in coke in even these free burning anthracite coals. I should not like to make a statement to that effect unless I could consult reference books or notes on it. That is simply an impression.

Q. Mr. Doane has stated that coke is a freer burning coal than anthracite coal, it is more easiy ignited and requires less draft. Is not the requiring of a less draft a positive advantage in that a less percentage of heat goes up the chimney?

A. Well, that is draught for any particular fuel. If you took a fuel that burns twenty-four pounds of air to the pound of fuel, of course, you can get a certain maximum flame temperature in your boiler, and if you burn it with twelve pounds you will get a very much higher maximum temperature and more efficiency in your boiler. I am using those figure from memory. I think the twenty-four is about practice and the twelve is about theory, and the maximum in the furnace would be about 800 degrees difference, all this is from memory. I have not looked it up for ten years. So that the

less amount of air you use for a given fuel, the more economical results you will get from that fuel, but simply because a certain fuel requires less air than some other fuel you would not say there was any question of economy there. I should say there was the same saving in economy by not using twice as much air on the second fuel as against the theoretical quantity. The principal objection to my mind in a free-burning coke would be such a free-burning coke that the ordinary leaks around the doors would give more air than required. That is the only thing I can think of.

Q. Do you know whether the Barrett Company and National Coal & Coke Company market the by-products of the Central Union Gas Company?

A. What is that?

6052 Q. Do you know whether the Barrett Company, with whom you have your contract for coal tar and ammoniacal liquor, also purchases the coal tar and ammoniacal liquor or sulphate of ammonia from the Central Union Gas Company?

A. The first question included another company?

Q. Yes, and I separated them so you may have less difficulty in answering them.

A. My impression is that the Barrett Company buys the by-products from the Central Union.

Q. Do you know whether the National Coal & Coke Company market the coke of the Central Union Gas Company?

A. I don't recall what that company is—

Mr. MATHEWSON: Mr. Doane testified that the National Coal & Coke Company sold nothing but the coke of the Consolidated Gas Company.

The WITNESS: Oh, I was confusing in that question the United Coal & Coke Company, which erects our Hoffman ovens.

Q. No.

A. You mean our National Coal & Coke Company?

Q. Yes.

A. No, they do not handle Central Union coke.

Q. You have spoken of the recent increase of wage being ten per cent. to all those receiving less than two thousand dollars a year. Will you point out to me under Exhibit 94 under what item this increase would be shown?

A. I cannot identify properly every item, but I would name a number that I believe would appear. Under the head of coal I should expect it to appear in cartage and labor handling——

Q. Would the entire $225,000 a year be distributed over those items?

6053 A. Pardon me, I was commencing to give them to you. Do you want to cut me off with th- two items?

Q. I do not. I beg your pardon. I thought you had finished.

A. In residuals it would appear in all three of those items, probably.

Mr. MATHEWSON: You mean all three of the items under the head of residuals?

The WITNESS: Yes—no, it might not appear under the one, coke loads, as that does not include any handling of the loads of coke.

That is net coke. I am not positive but that there might be some item of labor under the heading tar and the four items that follow under residuals. Under the head of coke used, tons, the labor and cartage would be affected; cartage and labor under the heading beginning naphtha; and in the fuel oil which includes drip oil, labor, that would be affected; in the repairs to apparatus, buildings, tools and implements, in so far as labor is involved; in expense; in distribution; in experiments; in distribution, station expense; in cost of manufacture under agency agreement, in so far as the labor would affect other companies; following on down in expense, and in all the items appearing there excepting street lamps, interest on consumers' deposits and bad and doubtful debts; profit and loss adjustment; expense to the general office; vacation and sickness; automobiles, if any item of labor appears in there; I do not recall for the moment. Those are some of the items.

By Mr. MATHEWSON:

Q. Would it not appear in the item, ten cents for renewals and contingencies as that ten cents includes replacements?

A. It would appear in the contingencies so far as contin-
6054 gencies are concerned, not only the amount I gave heretofore, but the additional amount at this time, amounting to the full amount, upwards of $180,000. What I would like to specifically except is that it would not include any labor that was used in the direction of improvements other than replacements, but they do not appear on Exhibit 94.

By Mr. KIRBY:

Q. In crediting to the cost of producing gas at your different stations, the amount obtained for your residuals, you have used, I take it, the amount paid to you by the Barrett Manufacturing Company, or the other concerns to which you sell your residuals, or to yourself, where you use them yourself, and make a credit therefor, and reduced it to a cost per thousand cubic feet of gas made and sold, have you not?

A. Mr. Carter can better testify to specific details of that kind, Mr. Kirby, than I can, but I will testify as well as I may on the subject in that direction.

Q. If Mr. Carter is better informed I would much rather leave that examination to him.

A. He handles the books, but the tar is charged to us, a certain amount. I am uncertain to one item, particularly, and that is as to the tar we burn, how that is charged.

Mr. KIRBY: I would much prefer, if Mr. Carter has a better knowledge of the subject, to examine him, but by reason of the testimony which has been put in as to the price obtained as to these residuals, there are some few questions as to how the amount is produced.

The MASTER: Mr. Mathewson has said that he would produce Mr. Carter here.

Mr. MATHEWSON: Yes, and will ask him as to the residuals.
6055 Mr. KIRBY: I do not want, then, to take up any further time of Mr. Addicks on that subject.

At 1 P. M. a recess was taken until 2:30 P. M.

After Recess.

WALTER R. ADDICKS resumes the stand and further testifies:

Cross-examination by Mr. KIRBY (continued):

Q. Just one more question in reference to depreciation, if I may. What would you consider a fair depreciation on a piece of apparatus costing $2,100 which every three years requires repairs to the extent of $450?

A. Every three years requires them?

Q. Yes.

Mr. MATHEWSON: When? When first put in?

A. You do not care to specify the apparatus, of course?

Q. No.

A. You do not apply it to the gas company either?

Q. No, not necessarily.

A. Given a mere proposition, irrespective of where it is being used, how it is being used, what maintenance is ordinarily put on it, if you have a piece of apparatus costing $2,100 and assuming that the $450 is put upon the apparatus in every year, assuming there is no suspense accounts, I should say that the depreciation would be—assuming also that the wear and tear is gradual, that the depreciation would be—the original value would be $2,100, and one-
6056 third of $450 the first year, two-thirds of $450 the second year, and as the third year the repairs would be made it would bring it back to $2,100 again.

Q. What has the suspense account to do with depreciation?

A. Well, I mean by suspense account in that sense that you are not providing for repairs on that apparatus each successive year in anticipation of the final. That is what I am referring to.

Q. Well, assume that when we got to the third year we would have had to expend upon it $450 and would set that proportion aside each year, would that have anything to do with the depreciation on the apparatus itself?

A. The third year you would not have to obtain from your earnings your full $450, but you would have spread it in repairs during the three years.

Q. It simply has reference to the source from which you take the money to make the repairs with?

A. Yes, as to whether one year or three years.

Q. Taking up your testimony of yesterday (page 5925) you state in reference to the oil gas at 21st Street—or, rather, Mr. Mathewson stated—in other words, this 400,004 includes the oil made at 21st Street and which is sent to the 14th Street station, as well as the gas actually made at the 21st Street station and sent from here, does it no?

A. Yes. It includes oil gas.

Q. You are quite positive that the deduction from 400,004 to 384,604 is not due to correction for temperature?

A. I have not got my original because the stenographer has not returned it to me.

Mr. MATHEWSON: It is 384,604.

Q. I refer to page 5930 of your testimony where the total of water gas made for the month of February, 1905, is given as 384,604?

A. I have to assume that that is correctly reported from the one I gave.

6057 Q. Well, assuming that is correctly reported?

A. I checked that, Mr. Kirby, as including the oil gas and not the corrected gas, and I have no reason to believe that my statement is not absolutely accurate, that that represents the gas made, including the oil gas, and is not the uncorrected; that this figure is not the corrected carburetted water gas with the corrections due to temperature excluded.

Q. That is, that 400,004 would be the total of the water gas uncorrected and the oil gas?

A. No, I do not say that the 400,004 is the water gas uncorrected, whether it is corrected or not corrected, but the 400,004 included the oil gas made for the 14th Street station, whether it was corrected or uncorrected, because this 400,004 I do not recall at the moment, but if it were the corrected or whether it is the combination of the corrected oil gas and uncorrected water gas, or corrected water gas and uncorrected oil gas, I don't know; but the figure I gave is the carburetted water gas made, corrected for temperature.

By Mr. MATHEWSON:

Q. That is 384,604?

A. Yes, sir.

By Mr. KIRBY:

Q. 384,604 for February, 1905. Very good. Now for December, 1902, have you that statement?

A. I have, yes. I have not got the corrected one.

Q. The total of the first column there being 390,777, is also only for the carburetted water gas and includes no oil gas, am I right in that?

A. Oil gas for the 14th Street station?

Q. Does it include any oil gas?

A. Well, such oil gas as would be in carburetted water gas.

Q. But outside of that not?

A. No, it is not included.

6058 Q. Now, likewise with the third column, the candle power at the station, I am right, am I not, in assuming that those candle power readings are for the carburetted water gas as enriched and it does not include any readings upon the oil gas sent down to the 14th Street station?

A. No, I should say not.

Q. That is, it is the readings on the gas which came from the Lowe apparatus?

A. No, it would probably be the readings from the Lowe plus the retort and oil process which was in use in 1902.

Mr. MATHEWSON: There were some Lowe sets there, Mr. Kirby, and some retorts at 21st Street, besides those producing the oil gas for 14th Street.

Q. The gas as tested with the tests as set down in this statement on page 5932, is that which went into the holder at the 21st Street station and was then distributed to the consumer?

A. I cannot tell you whether the test is at the inlet or the outlet of the holders.

Q. Well, either into the holder or from the holder?

A. It is the make of gas at that station, not the make of some other station added to it. It is the gas made there in that station and sent to the consumer.

Q. And it was not enriched after the time of testing before going to the consumer?

A. This would be an enriching product itself, this would not be enriched but it might enrich some other gas.

Q. Do you know whether or not this gas with the candle powers here set down was sent out to the consumer?

A. This was before I was here—1902.

Q. Well, go to the 21st Street station, February, 1905, when you were here?

A. I cannot be any more particular. It is the make of the
6059 gas of the station. I do not make personal tests.

Q. But you are familiar with the tests?

A. Yes, I am familiar with the tests of the gas of every station where there is such a test.

Q. You have set down here a table on page 5934 of the testimony, giving December, 1902, and December, 1904, February, 1905, to December, 1905, giving the candle power test at the station and the candle power at the city testing station and I note that for December, 1905, that you give the candle power at the station 26.51?

A. What year is that?

Q. December, 1905.

A. Yes.

Q. Which is the same as that appearing as the average of the tests during the month of December on the table set down on page 5933 of the testimony?

A. Yes, that is right.

Q. So that you have made comparison of the candle power with the test of gas taken at the city testing station?

A. That is right.

Q. So that am I not right in assuming that that is the same gas tested at the station and then which went to the city testing station and was there tested?

A. That is the gas which the City Inspector reported as having tested of the gas at that station. You can take his report of it.

Q. So that this gas had no further enrichment or treatment of any kind from the time it was tested at the station?

A. Well, I only know that the city inspector in his laboratory re-

ports to us he had tests of certain gas as 21st Street gas. We have not access to his laboratory and don't know what he does in his laboratory.

Q. What do you mean by 21st Street gas?

A. Haven't you seen the different tests?

Q. Yes, but I want to know what you mean by 21st Street gas when you speak of it as such?

6060 A. That is simply the gas reported by the inspector as having tested 21st Street gas.

Q. What do you mean when you said 21st Street gas in any of these tables?

Mr. MATHEWSON: Those are Mr. Edgerton's tables. We are taking his figures. It is not our method at all.

Mr. KIRBY: This was December, 1905. Mr. Edgerton had nothing to do with that whatever.

Mr. MATHEWSON: His method was pursued in making up the figures.

A. It is simply a report of the months of 1905, the similar report for those months which Mr. Edgerton took prior to that. That is all.

Q. Where did you get these readings of candle power as set down in the third column of your statement, December, 1905?

A. From the same source Mr. Edgerton got those as set down here.

Q. Do you know where that gas is obtained to make those candle power tests with?

A. It must have been obtained only from the station where the gas is made.

Q. The gas as it goes into the holder or as it comes out?

A. If the gas is going out of the holder, if it is enriched with any other gas, it certainly would not be the candle power of the station. It would be that gas which was being made by the station.

Q. And would be so indicated upon your records, would it not?

A. Yes, the very fact of "candle power at stations" would indicate that to me.

Q. That is what I assumed and asked you, and now we know.

A. That is the fact.

Q. Now, December, 1904, I think has been referred to by Mr. Simpson as being an exceptionally cold month. Is that in

6061 accordance with your impression?

Mr. MATHEWSON: You are mistaken. Mr. Simpson did not mention any month. He said that winter or some other winter was an exceptionally cold winter taken throughout. He did not say December was exceptionally cold.

Q. Do you know whether or not December, 1904, was colder than December, 1905?

A. I know that December, 1905, was the warmest December since 1891.

Q. Then December, 1904, would naturally be a colder December than that of December, 1905, would it not?

A. Yes.

Q. And it is also your impression that the winter of 1904 and 1905 was exceptionally cold, is it not?

A. Well, I don't know whether it is 1904 that December was colder or 1903.

Q. If Mr. Simpson has so stated you would be inclined to concur in that conclusion?

A. My impression is that Mr. Simpson did not differentiate between 1903 and 1904.

Q. As a matter of fact both of those winters were cold winters?

A. 1903 and 1904?

Q. 1903 and 1904, and 1904 and 1905?

A. I can't remember whether it was 1902 and 1903 or 1903 and 1904, but it is one of those two. There were successive cold winters, but whether the coal strike year was one of the cold winters or not I cannot recall at the moment.

Q. Am I right in inferring from your testimony that you advanced the proposition that high gravity oil so enriches the gas that the gas holds its candle power better than when a low gravity oil is used?

A. I think, to put it more accurately, that the higher gravity oil gives gases and vapors which are not so apt to be condensed
6062 by a low temperature as the low gravity oil.

Q. And you also advance the proposition, do you not, that where you use a high gravity oil that the loss of candle power in the mains is less in cold weather than where you use a low gravity oil?

A. I think it is apt to be. Of course, there are limits to all degrees.

Q. I call your attention to State's Exhibit HHHH, page 1585 of Exhibits, and to 21st Street station. This is for the year 1905, as the testimony of Mr. Edgerton shows? I note in December, 1905, the average gravity of oil was 34.49, candle power at the station 26.51, city inspection candle power 23.37, showing a loss in candle power between the works and the city inspectors' stations of 3.14 candles. I call your attention to January of 1905, where the gravity of oil used was 30, the corrected candle power at the works 25.14, city inspectors' test 25.24, showing a loss of 3.9 candles. Does that carry out your conclusion with reference to loss of candle power in the mains, whether a high gravity of oil is used as against a low gravity of oil?

A. Not as conclusive as in some other cases you will notice. There is a larger number of gallons of oil used in January than in December, and a larger loss of candle power in January than in December.

Q. And a lower gravity oil in January than in December of 4.49 degrees?

A. Yes.

Q. I call your attention to the reading of April, where you used a gravity of oil as high as 33.8, where the test at the station was 25.07, and by the city inspector 21.69, showing a loss of 3.38; and then in July of the same year, where we have an average gravity of oil used of 28.38, candle power at the station 27.72, city inspectors' candle

power 24.61, showing a loss of 3.11 candles. Does that carry
6063 out your conclusion as to loss of candle power being greater with low gravity oil than with high?

A. The loss of candle power in the case of this higher grade oil is a little greater than in the lower, although with the lower gravity oil there were 4.83 gallons used in place of 4.49 of the higher gravity, but you are coming now into the summer weather where we use either gravities as a rule. I would like to call your attention further to 44th and 99th Streets.

Q. Yes, I would like to call your attention to any statements there which carry out your conclusions.

A. Well, I will call your attention to the fact that the losses shown as of November and December in 44th Street are very much less than the higher gravity oil, as a rule, than with the lower gravity oil.

By Mr. MATHEWSON:

Q. How about April there?

A. In April, in that case, the loss is 1.71, whereas in December here, 34, it was considerably smaller than that.

By Mr. KIRBY:

Q. December, of which you have just spoken, December, 1905, 44th Street station, I see a note that the candle-power, as tested at the station, was 24.21, while at the City Inspector's office it was 24.26 or a gain. How do you account for that?

A. Well, that occurs at times, in many stations on the same day. I would further say this, that this variation, even with 34 gravity and 29, gravity illustrates to some extent that it is preferable to use an even grade of oil during a given season and not change from one to the other, on account of the fact that the gas makers will have to accustom themselves to change of gravity. You notice in March and April and in May they went up in gravity and then went back again.

6064 By Mr. MATHEWSON:

Q. That is 21st Street?

A. That is 21st Street. [illegible]l it is true of April in 44th Street, and it is more uniform throughout the year at 99th Street, although there is considerable variation in 99th Street from month to month.

By Mr. KIRBY:

Q. Again I call your attention to the fact that these readings are averages for the month, so that this gain in candle-power in December would indicate that it was not one or two isolated readings but the readings over that entire period which show a gain of .05 candles rather than an extraordinary result, is it not?

A. Well, that shows the average gain.

Q. A gain in the mains?

A. Yes. It is a little different between—that is, 44th. Well, the difference in 99th, there is a slight difference in the apparatus of 99th and 44th Streets. The same thing is true in the 99th Street station; there is a gain.

Q. In the same month?

A. Yes, sir; in the same month; December; also in November.

Q. You do not advance the proposition, do you, that gas is apt to gain in candle power from the station to a point a mile or more away?

A. No, but I would say that two observers would not be able to read candle power closer than half a candle, if on the same bar, so while there might apparently be an increase in candle power there might not be any increase at all, simply the difference between two observers—a personal error.

Q. If the error was only that of .05 candles, it would?

A. It is a pretty small difference.

Q. It would mean then there would be no loss in candle power from the station to the city testing station?

6065 A. Not necessarily that, but there might not be any loss. You notice in 30 gravity oil here, just before, in October, that there is a loss. No, there is no loss in that case either. Quite a number here where the—— Yes, there is a loss in November, but with the high gravity oil there was no loss.

Q. Well, if these tables with their rather extraordinary results in some parts thereof show anything, do they not show a substantial agreement with Mr. Edgerton's testimony that condensation products are largely lost in the gas holder during cold weather, and that during the first warm weather of spring those products are re-evaporated, enrich the gas at the station and are again deposited in the colder mains on account of their instability?

A. I would not draw that conclusion from that, as it does not seem a material drop in the candle power in November and December to indicate a very large accumulation of oil on the top of the surface of the water. As far as any pickings of oils on the surface of the water, I am doubtful if that occurs materially. I can conceive that it might occur if there were oils in the line of main, where if the gas going through was below saturation that hydro-carbons might be picked up. I can't quite see how a material picking up the vapors in a gas holder where the gas is 150 feet high and the area is the area of a 100 or 200 foot tank, I don't quite see how it is possible for material picking up of the hydro-carbons. I never have been able to follow that as a theory.

Q. The large surface of holder exposed to the sun would produce a substantial increase in temperature of the gas contained in the holder, would it not?

A. On the portions of the holder immediately adjacent, yes; it does make a difference, quite a considerable difference, but I don't think that it extends very far down into the middle of the gas

6066 holder. It does not affect the entire body of the gas in a very large holder. On a very small holder, such as Mr. Edgerton has probably been accustomed to, it might produce an impression, but I do not believe it does here.

Q. The larger the holder the larger the area of surface exposed?

A. That is true, but the volume would be greatly increased proportionately.

Q. The gas leaves the holder at approximately the bottom thereof, does it not?

A. The gas leaves the holder at the level of the water, wherever that may be.

Q. That is not close to the top, is it?

A. Well, it is close to the top of the inlet and outlet of the holder, and in a steel tank is level with the top of the tank, and if you have the holder fully cupped, five lifts of forty feet each, it would be about 200 feet high. The gas would come in the inlet, go into the holder and go out at the outlet pipe if coming in and out at the same time. Just how far that gas will go into the holder I don't know.

Q. The outlet pipe being about the level of the water?

A. The inlet and outlet pipes are just about far enough above the water so that when it is in use the water won't flop over into either the inlet or outlet.

Q. The precipitated globules or oil——

A. Condensed hydro-carbons.

Q. The condensed hydro-carbons would be upon the surface of the water, would they not?

A. They lay on the surface of the water, and when they get to a certain amount they are taken off.

Q. And the gas warmed by contact with the holder which, in turn, is in contact with the warm outside air or which has the rays of the sun playing upon it, would pass over this water upon which would be floating these precipitated hydro-carbons, would it not?

A. Yes. Of course, you understand they are at only one
6067 point. The gas itself is over the whole surface.

Q. Oh, yes.

A. And if that gas is not saturated with vapors, and the warmer the gas is the less saturated it might be, it might pick up a certain amount, but I am not able to subscribe to the theory that that is of appreciable moment. That is all.

Q. It would be more appreciable than it would be in buried mains where the temperature of the surrounding earth is in the spring less than the temperature of the air surrounding the holders, and where those mains are not subjected to the heating power of the sun?

A. I think it would be more noticeable in the mains, if you had mains filled with them. As a matter of fact, we do not have mains filled with them. The mains are continually pumped and, therefore, what condensation accumulates from time to time is removed as rapidly as possible.

Q. So if any candle power or hydro-carbon were picked up it would be picked up in the holder?

A. Well, I think, to a greater or lesser extent, yes.

Cross-examination by Mr. BURR:

Q. When you say, at page 5934, that the city test averaged 21.80, where did you obtain those figures?

A. What date; what time?

Q. December. Mr. Mathewson said, "Q. Now, taking 1902"——

A. December, 1902.

Q. Yes. "The gravity of the oil was highest, was it not from 36 to 38 gravity? A. Yes. Q. And the station test was how much? A. 23.89. Q. The city test averaged how much? A. 21.80." How did you arrive at that average?

A. I requested that at the office of the company and they furnished me with copies of the city's tests and the dates thereof.

6068 Q. Have you got those figures?

A. I have. This is December, 1902, we are discussing?

Q. Yes.

A. December 5, 20.57; December 12, 23.89; December 20, 22.12; December 26, 20.62; average, 21.80.

Q. Now, you have stated that you estimated the requirements for oil for the companies whose supply is derived from the contract of November 1st, 1905, to be 107,420,460 gallons for the period from 1907 to 1908.

Mr. MATHEWSON: For each year?

Q. Or for each year?

A. No, that is not each year. That is for that year.

Mr. MATHEWSON: For what year?

The WITNESS: For the year 1907. That is to say, twelve months, taking the twelve months, of the entire twelve months.

By Mr. MATHEWSON:

Q. Not for two years?

A. No, I thought you said for each year.

Q. No, that is what I mean.

A. It is for one year.

By Mr. BURR:

Q. From a period in 1907 to the same period in 1908?

A. It would cover a winter and summer and spring and autumn. If you commence at autumn you go to the autumn of the following year. Covering the winter season is what is referred to.

Q. That, you say, would be the amount?

A. That is the estimated amount probably used at that time.

Q. Upon what do you base that amount and which companies do you refer to?

A. I based—shall I tell you just how I arrived at it?

6069 Q. If you please?

A. Years of 1905, 1906, 88,770,000 gallons, and for each year increasing about 10 per cent. of the amount of oil used.

Q. Well, do you know what the 1905 figure was based on?

A. 1905? Yes, I do. Some figures of use of oil at that time for those months, simply a rough estimate to get at about how many gallons to put into a contract. We do not use our oil always within the time of the contract. We are allowed sometimes to extend over.

Q. The testimony here is, as I understand it, that the coal and oil purchased by the Consolidated Gas Company, and the contracts for which are in evidence here, such coal and such oil is used by all the constituent companies forming the Consolidated Gas Company—I

mean used at all the stations of the Consolidated and by all the subsidiary companies with which the Consolidated Gas Company has contracts?

A. No, that is not true.

Q. Do you say that the fact is not true or that that is not the testimony?

A. Well, I don't know whether the testimony is to that effect or not, but if so, I don't agree with the testimony.

Mr. MATHEWSON: No, it is not. I think what Mr. Burr has in mind is that this contract of 225,000,000 gallons for convenience was negotiated in one contract and it was to cover the supply for the Consolidated and part of which the New Amsterdam was to receive and part the Standard and part the Central Union.

The WITNESS: That is correct, but there is an agency agreement between the Mutual and the Consolidated, if I remember rightly, and that does not include the Mutual.

6070 By Mr. MATHEWSON:

Q. You mean agency agreement for the purchase of gas under that agreement?

A. Yes.

By Mr. BURR:

Q. But the coal and oil which you arranged for under the contracts and which are now in evidence are used by your various stations and by the companies that you have agency contracts with?

A. Well, we have agency contracts with those who use it.

Q. The three companies Mr. Mathewson just named?

A. Yes, but not all we have agency agreements with.

Q. Now, what I would like to know, if you can give me the data, is how much oil is used by each station of the Consolidated, and how much by each of those three companies.

Mr. MATHEWSON: Mr. Master——

The WITNESS: I could not give you that offhand, to save my life.

Mr. MATHEWSON (continuing): You will remember this question came up in reference to this contract for oil and counsel were permitted to examine the books of the company including their oil receipts, to show just exactly how much went to the company; the same as to coal; and their accountants have been on the books for something like three months——

The MASTER: The witness says he cannot give it.

Mr. MATHEWSON: But he is asking for information that is already on the record, in any event.

6071 The WITNESS: Wait a moment. I think I can answer such a question as you need now.

Q. Please do so.

A. You ask for 1905 and 1906.

Q. Yes.

A. I can't tell you that. I haven't my estimate for 1905 and 1906. I can only give you 1904 and 1905.

Q. Well, give me that.

Mr. MATHEWSON: What date, begin and end?

The WITNESS: Beginning October 1, 1905, and ending September 30, 1905. Each station?

Q. Yes, please?

A. On account of—

14th Street	3,309,082
21st Street	19,079,656
42nd Street	2,033,608
44th Street	10,385,722
99th Street	6,190,864
Standard	11,781,978
New Amsterdam	23,236,488
Central Union	4,689,166
Total	80,706,564

I have not got the Mutual on my list.

Q. Now, when you assume ten per cent. yearly increase in oil since that time, is that based on ten per cent. of yearly increase of sales of gas or what?

A. No, simply a rough figure on the use of oil to make a contract which will certainly cover the oil we require under any circumstances. As a rule, so far as my experience goes, the oil extends over to several months afterwards.

Q. Well, has that been your experience since you came into the Consolidated, that the consumption of oil has increased by that amount, ten per cent. each year?

A. I don't recall what it is. We simply took a round
6072 figure to get a full figure for the amount and then I determined on, I think, 250,000,000. If you add those together it will make more than 250,000,000. It makes—the total of the figures I have here makes 292,000,000 and I took 254,000,000.

Q. So when you spoke of the requirements of oil for the companies whose supply is derived under the contract of November 1st, 1905, you had these stations and these companies, the Standard, New Amsterdam, Central Union and Mutual in mind?

A. Not the Mutual, no, sir.

Q. But with that exception, you had the stations and other companies in mind?

A. Yes, sir, because I referred to that contract which it has already been stated covered all those companies.

Q. You in your capacity as active manager of the Consolidated and vice-president and chief engineer, as I understand——

A. I am not chief engineer, Mr. Burr.

Q. Well, in your official capacity you undertook the negotiation of the oil contract?

A. Yes.

Q. And as I understand, you did the very best that you could under the circumstances as you found them to exist?

A. I made the best effort I could, yes, Mr. Burr.

Q. And you found as the result of your investigation that there

was no other company beside the Standard Oil which could supply the quantity of oil which your company required?

A. I knew that, Mr. Burr, before that time.

Q. And therefore, if the Standard Oil Company saw fit to charge you 5 cents or 6 cents you would be obliged to pay it, there is no redress?

A. In the absence of not having a coal gas plant large enough to drop the use of water gas, I think that is a fair statement; that is one of the reasons I am anxious to have the coal gas plant at Astoria so we will be independent of everybody.

6073 Q. From your experience in Boston and here, the consolidation of companies is largely based upon the assumption that such consolidation will result in an economy of cost of operation.

A. Well, my view has always been that it causes an economy of construction in the future.

Q. And in the operating expenses?

A. It would tend to reduce that, but the point I have always had strongly in mind is that you can start and lay out your plant with a uniform idea; you do not have to duplicate mains. Take New York, with several companies, you might have to lay mains for two companies, whereas one main might be laid of slightly larger size to accomplish the object of both companies. The division of a company, I called attention to that in Boston, if I recall it, one company might be weak in a certain district where another company might be strong. And if mains have got to be laid independent it seems to me it is a waste of capital; and the same thing is true of works. When you come to the actual maintenance of the plant, it reduces it in the future and reduces it, to some extent, in the present, particularly in the principal officers of the company.

Q. Yes, but as I understand it, consolidation seeks to bring under one general head and one general department what formerly extended under various heads and various departments and thus save expense of the operation?

A. That is the tendency, certainly.

Q. And where small companies are obliged to pay large prices for various supplies, the aggregate of these companies, requiring a far greater quantity, would result in reduced prices, that was the idea?

A. That depends upon what you are buying, of course.

Q. That is the idea of consolidation, is it not?

6074 A. I never have considered consolidation in the sense of reduction in large quantity supplies. I have looked at it entirely from the operating standpoint, of labor and capital account. I have never looked at that point of view.

Q. From your experience you would not say that consolidation would result naturally in the increase in the price of the supplies?

A. No, but it might mean this, that you might consolidate two stations or two companies that were both buying sufficiently large quantities of a thing to get the same price; therefore consolidation would not affect economy in that direction. On the other hand, you might have a very small company and a very large company,

and consolidation would reduce the cost to the smaller company but not affect the cost to the larger one.

Q. In procuring the supply of oil you found to be necessary here, why did you not open up negotiations with various companies for the supply of each particular station and each particular company that you have named, and thus open up competition?

A. It would not have occurred to me to do that, Mr. Burr.

Q. It could be done?

A. Well, I don't think it could be done; but, however, if you say so——

Q. Well, could it be done?

A. I don't think so.

Q. Why not?

A. Because I do not think you could obtain it. I have been through the experience already outside the Standard Oil Company myself. I have bought oil from outside.

Q. Do you mean to be understood as saying that with all the other independent companies in existence to whom you have made reference and the Standard Oil that by such means you could not open up competition between the Standard Oil Company and
6075 these other companies for the supply that you need at these various stations and various companies?

A. To be perfectly frank with you, I would not undertake it. I would not undertake the responsibility.

Q. But you would not be understood as saying it could not be done?

A. Well, I do not believe it can be done.

Q. What is the next largest gas company in the City of New York to the Consolidated?

A. Now, are you speaking of the Consolidated as the Consolidated *versus* the New Amsterdam, or do you mean the various affiliated companies of the Consolidated Gas Company?

Q. I mean in the City of New York.

Mr. MATHEWSON: In the Greater City?

Mr. BURR: In the Greater City.

The WITNESS: I think the Brooklyn Union would be the next largest.

Q. Do you know what kind of oil that company uses?

A. I am not in touch with what oil they are using at the present time.

Q. You are not the engineer or consulting engineer for that company?

A. No. Years ago I was consulting engineer for several of the small Brooklyn companies, but that was a good many years ago.

Q. Are you familiar with their output of gas, the quantity per annum?

A. I saw it in the course of their investigation, but I do not recall what it is; my impression is it is something like about thirty millions a day, as a maximum, but I will not be sure about it.

Q. What is the storage capacity for oil at your plants and at these companies' plants?

A. I think approximately the following:

6076	14th Street	Nothing
	42nd Street	180,000 gallons
21st Street, about		440,000 "
44th Street		306,000 "
99th Street		226,000 "

That, I think, is figured on everything chock-a-block.

Q. That is 1,146,000 gallons, is it?

A. Yes. At 21st Street we are just finishing constructing a half million gallons tank which is not ready for use.

Q. An additional storage tank for half a million gallons?

A. Yes. But I do not think that is in service yet.

Q. That would be 1,146,000 gallons storage capacity?

A. I did not add it up. I will, if you want me to.

Q. Well, you can see if it is correct. I understood you to say that some little while ago you had run out of oil almost entirely?

A. At 21st Street.

Q. At 21st Street?

A. Yes.

Q. In case of shortage at one station do you get oil from another station?

A. No, sir.

Q. Why not?

A. Well, it would be hardly possible to discharge our tanks into a barge, and bring the barge around and discharge it back.

Q. That is the only method by which you could do it?

A. That is the only way I could think of.

Q. And some few weeks ago when the defendants sought a sample of 28 Beaume, I understood you were all out of 28 Beaume oil?

A. It was during the winter and we are using 34 degrees. If you would come in the summer we would give you 28 degree.

Q. You did not have enough even to fill a bottle?

A. I so understood, yes, sir.

6077 Q. Now, on page 5940 you gave a resume of the amount of oil required by the various companies, showing, or attempting to show by comparison what a small lot it was compared with the amount that you required, and how long the oil that you needed or used in eleven days would last the various companies?

A. The oil we received in eleven days would last these companies.

Q. Received?

A. Yes.

Q. Now, if these companies were all joined together and sought to obtain the aggregate amount they needed, is it your opinion that they would meet with the same difficulties that you have met with in securing your supply for the Consolidated Gas Company?

Mr. MATHEWSON: I object to that as wholly hypothetical. These companies scattered around in one place and another, of course they could not be joined and could not exist under these conditions.

Mr. BURR: Well, he has indulged in a great deal of speculation.

The MASTER: It is a little remote, but I will let him answer it if you think it is of value.

A. Well, I do not care to answer that question, Mr. Burr. The stations are very widely scattered, some are in the oil regions, very far away, and some near the oil regions, and I don't know what effect it would have.

Q. Have you any knowledge or information of the supply required by the U. G. I. for their various stations and subsidiary companies?

A. No.

Q. Do you agree with the statement of Mr. Mathewson that "if we got all the oil in the country outside of the Standard Oil Company it would not be enough"?

6078 Mr. MATHEWSON: That was his statement, I did not say anything about it.

Mr. BURR: On page 5941: "Mr. Mathewson, we will meet that a little later in this testimony. If we got all the oil in the country outside the Standard Oil Company it would not be enough."

Mr. MATHEWSON: Well, he so testified, and I was simply echoing him.

The WITNESS: Do I agree with that statement?

Q. Yes.

A. I think I very clearly stated what I did state, that is that some sixty odd thousand gallons of 34 gravity oil would seem to be available if the yield of that grade was the same throughout all the United States and handled by all the outside refineries, which was less than would be required by this company. But as far as 44 gravity Able is concerned I stated that there was slightly more of that, and if yield averaged the amount assured them from the crude used, there would be slightly more than that amount made in the United States, and it would just be sufficient in round numbers for our probable need if we could obtain it all. I think that was my statement, Mr. Burr. But the crude oil itself, so far as the crude is concerned, is very much in excess, it is some—from my memory, over 300,000,000 gallons, when you take the whole volume of the crude, I mean.

Q. So that unless you would adopt some such means of creating competition as asking for bids for the supply of each station and each subsidiary company, you would continue to be absolutely at the mercy of the Standard Oil Company to pay whatever price they exacted from you?

A. Mr. Burr, under the condition as I see now in the case, we could not buy oil cheaper from anybody in the United States
6079 than we are buying now, on the evidence which has been put in here by these gentlemen from the west.

Q. I have no objection to your making that statement, but I will ask you to answer the question if you will, please?

A. Well, I did not intend it should not be answered. Will you repeat the question, please?

Q. So that unless you would adopt some such means of creating

competition as asking for bids for the supply of each station and each subsidiary company, you would continue to be absolutely at the mercy of the Standard Oil Company to pay whatever price they exacted from you?

A. I will say this, in answer to that question, that we must depend, it would seem to me, upon the Standard Oil Company in any case for a portion of the product, and unless we could purchase from the Standard Oil Company that which we require over and above what we could purchase and store from any outside companies, we would be in the same position, it seems to me, as we are now.

Q. I will not argue the question with you. That is the best answer you make to the question, is it?

A. If you will read the question I will try again, if it is not satisfactory.

Question repeated as follows:

"Q. So that unless you would adopt some such means of creating competition as asking for bids for the supply of each station and each subsidiary company, you would continue to be absolutely at the mercy of the Standard Oil Company to pay whatever they exacted from you"?

The MASTER: It seems to me that is responsive, Mr. Burr.

Q. Well, I am asking if that is the best answer you can
6080 make?

A. Mr. Burr, the other companies are very large companies. The other companies may require more oil, they themselves, without the Consolidated Gas Company. They themselves may require more oil than they could buy from the independents, so called. You see, if I can make it plain, suppose you had one very small company, you might buy all the oil possible from that one company but——

Q. The point I was going to make——

A. I do not like the expression "at the mercy of" because I do not think that is exactly the situation.

Q. Unless you can devise some way of opening up competition in the way I have suggested, or some other way, you will be, as a matter of fact, obliged to deal as you are dealing, with the Standard Oil Company and in the manner which you have done?

A. Yes, I think we will have to deal with the Standard Oil Company, if that answers your question, unless some other method can be devised.

Q. You say the average cost of the oil which you now use is 4.524?

A. That is the average on the proportions you know the contract covers, 40 per cent. of 34 degree and 60 per cent. of 28 degree. If we should use a few gallons more of 34 degree or a few gallons less of 28 degree it would change that, but not materially.

Q. And the stipulation which appears in the contract, requiring you to purchase all your supplies of the Standard Oil Company, that is forced into the contract by the company, if I understand you right?

A. I do not recall ever seeing a contract, Mr. Burr, that that clause was not in, either here or elsewhere.

Q. Well, you say that that is a stipulation which they insisted upon in making the price, that is true, there is no question about it?

A. Oh, they do, they require that that is part of the con-
6081 tract and that is one part, an integral part, of the contract, if I may use that term.

Q. Now, you referred to the statement of Dr. Marks as to the companies which he found in Brown's Directory, whose average was 3.65 cents per gallon. They were fourteen in number, were they not, or do you recall? If he said they were fourteen have you any reason to doubt that, or do you know?

A. I think I added twelve and made the total twenty-six, so I think it would be fourteen. I think I can check that.

Mr. MATHEWSON: He named them.

The WITNESS: I named mine, but I do not think I named Mr. Marks. I think his were fifteen in number, were they not?

Q. Does it not appear reasonable to you, Mr. Addicks, that if the fourteen or fifteen companies in the State of New York should get their oil in small quantities for 3.65 that a company buying vastly more in quantity should get it for at least less than 4?

A. I think, Mr. Burr, it depends upon the location as well as quantity. There are no other companies that I have seen that are getting their oil under the conditions which New York is getting it; in other words, having a water transportation in addition to the railway transportation. That water transportation must of necessity be an absolute addition to the cost of oil at the seaboard, and all these, of course, would be within the limits of the seaboard. In addition to that I call attention to the storage which all gas companies as a rule have for themselves. I had in Boston a very large storage, but even then I was backed up when I had a contract with the Standard Oil
6082 Company, I was backed up with the storage supply of the Standard Oil Company.

Q. Now, you have referred to four companies within the limits of the Greater City of New York, the Brooklyn Borough, Kings County, New York and Richmond, and Queens Borough Gas and Electric Company, and you have made some statements based on information you received from some of the gentlemen engaged in the operation of these companies, have you not?

A. Yes, I have.

Q. Are you the engineer or have you any connection with the New York and Richmond Company?

A. I have not.

Q. You are the engineer or connected with the Richmond Electric Light and Railroad Company, are you not?

A. I am not.

Q. Well, you are familiar with conditions as they exist in the Borough of Richmond, are you not?

A. I do not think I have ever been in the Borough of Richmond but once in my life. I am familiar enough by reading in the papers about it, but that is all.

Q. Am I misinformed when I say that you are engaged in making

plans for the construction of a large electric light plant in the Borough of Richmond?

A. Absolutely; if you are speaking to me individually.

Q. Yes.

A. I am not, nor do I know who is.

Q. Now, in the operation of these companies you have referred to the dropping of the oil, etc. In the operation of these companies and in the operation of every gas works, is it not a fact, Mr. Addicks, in your vast experience that you have had here and in Boston and elsewhere, that the human element enters very largely into the successful operation of a gas works; that one man may spend where another may save?

A. I think that is true within certain limits.

6083 Q. So, given the same conditions, the same oil and the same coal, one man may arrive at a better result than another?

A. That is possible.

Q. So that would have to be taken into consideration in arriving at a definite understanding of each case.

A. I shall have to add number 15 to my list on oil and candle power.

Q. So that unless we knew the capacity and character and ability of the various gentlemen who have informed you as to the results in their companies, we would be only guessing at the situation?

A. I think that would be an element which would have an influence upon me. I must know their professional reputation, but in one particular case I know he is a very careful man, and the others I do not know so well.

Mr. BURR: I want to call the Master's attention to page 5958. Strange, uncouth and ungrammatical language has been placed in my mouth during the progress of this case, due to the rapidity with which this record is being made and printed every day, and to which I have not taken exception, but I do object to having placed in my mouth such a word as "consmuption." I ask leave to have that changed to assumption or presumption, which is probably what I did mean.

The MASTER: We will expurgate that.

Mr. MATHEWSON: It is a matter of personal privilege, I suppose.

Q. You have referred to the matter of wages, Mr. Addicks, stating that your company has raised the wages of certain classes of employés 10 per cent. in the face of a round robin. Is that correct?

A. Well, I said that another company—that in the shop of one of these other companies they presented a round robin to their

6084 superintendent, and in another station their men had had meetings with a view to making a demand.

Q. Is it not a matter of fact that the Board of Directors of the Consolidated Gas Company voluntarily raised the wages of these employees?

A. It is not.

Q. Are you not aware that within the past three months, while we have been sitting here, that great corporations throughout the United

States have raised voluntarily the wages of their employees 10 per cent., such as the Standard Oil Company, the Pennsylvania Railroad and other large companies and railroads?

A. Yes.

Q. And is it not a fact that this raise in the wages of the employees of the Consolidated Gas Company was due more to public sentiment than the round robin?

A. Well, I think it was a combination of the two, Mr. Burr. When I say it was not done voluntarily, in the whole situation it was not done voluntarily, but we could not resist a demand under the conditions which existed. I do not think it would have been right to have resisted.

Q. Referring to the statement made on page 5978 that the Astoria plant came into active operation on the 3rd of December, will you tell me the details of that a little more. How did the company come into active operation? Are you buying your gas from that company?

A. We have not yet had the account of the cost of that gas made up so far as I know. We will undoubtedly——

Q. Well, it has been supplied to you since the 3rd of December, you are receiving it to-day, are you not?

A. Yes.

Q. To what extent daily?

A. Commencing with about 200,000 feet on the 3rd of December and increasing gradually to about 500,000 I should say, or possibly
800,000, and then the second house was started, as I remem-
6085 ber it, and that was allowed to come up gradually to possibly a corresponding amount.

Q. By the second house you mean part of the first unit?

A. Yes, the second house of the first unit, and then they were both gradually increased, so that now they are making over 4,000,000 feet a day, the two of them.

Q. You have been receiving that gas since the 3rd of December without any agreement as to what is to be paid for it, is that true?

A. None whatever.

Q. No agreement whatever has been made?

A. No agreement whatever. The amount in December was something like between 40 and 50 million feet for the whole month, so that the average, you see, was a little over a million feet.

Q. The Astoria Light, Heat & Power Company has no right or franchise to operate in the City of New York, as I understand it?

A. No, sir, I do not so understand it.

Q. They operate to-day in the manner Mr. Simpson described through Ravenswood, and the tunnel and mains, it is delivering its gas to your company at the station at 70th Street or 72d Street?

A. At various points. It is going through the transit mains to such points as it would be most convenient to use that gas.

Q. So that sooner or later you will have to agree upon a price for that gas?

A. Sooner or later we will have to arrange for the payment of the expenditure to make the gas.

Q. Well, if that is the price, you will sooner or later have to arrange it?

A. Yes, they cannot run on forever without getting something for their product.

Q. But there is nothing to show that that will be the sole price, the cost to manufacture that gas, or has there been any agreement to that effect?

A. No, but we own all the securities——

6086 Q. I understand, I will never forget it.

A. Well, I do not want you to forget it.

Q. You gave the weights of pipe in Boston. Where did you get those figures, Mr. Addicks?

A. I got them from a blue print, Mr. Burr. If you would like to see it I will produce it.

(Witness produces paper.)

Q. Well, you know that those figures given by you are correct?

A. Oh, absolutely, no question about it.

Q. And do you still think that a single main system on every street in New York would be a perfect absurdity?

A. I never made the statement.

Q. Then we are losing our minds. I see on page 5981, the question was asked:

"Q. What would be your view as to the wisdom of a single main system in New York City? A. Well, applied specifically to the single main system on every street in New York it would be a perfect absurdity."

A. Yes, excuse me, I did say that. I thought you said on the narrow streets.

Mr. MATHEWSON: The question was if you still thought so.

The WITNESS: I still think so, yes.

Q. I notice by the public prints, Mr. Addicks, that within the past few days you made the annual report to the Board of Directors of the Consolidated Gas Company and you are quoted as saying that the plants of the gas and electric light companies are physically in the best condition? Is that true?

A. That is my opinion of it, Mr. Burr.

Q. In that report you did not make any report as to the

6087 earnings of the Consolidated Gas Company for the past year?

A. I made nothing further than I think has been stated in the papers.

Q. Do you know what candle power the Philadelphia Gas Works uses, the U. G. I.?

A. Well, I think I have heard, and my impression is it was about 22. That is my impression from what I have heard.

Mr. MATHEWSON. Do you mean works or city tests?

The WITNESS: I don't know which it is, Mr. Mathewson, that is my impression.

Q. Do you know that that company receives 28 degree Beaume gas oil at 2½ and 3 cents per gallon in ships alongside the wharf in Philadelphia from the Guffey Company in Texas?

A. I do not.

Q. Is it not a fact that the l-gcally required candle powers of gas in 1905 was an average of 21 candle power, that is, 20 candle power the first six months and 22 candle power the second six months?

A. That is true.

Q. Was not the average candle power furnished according to Dr. Love's test 23.1 candles, that is, the first six months 22 candles, and the second six months, 24.19 candles, according to City's Exhibit 47, page 1198?

A. Of course I do not remember those figures, this is 1905?

Mr. MATHEWSON: If it was, and if it so appears in the exhibit, what is to be gained by asking the witness?

Mr. BURR: Because I am going to ask another question and I want to call his attention to it.

The WITNESS: Do you refer to the Consolidated Gas Company in your question?

Q. Yes?

6088 A. It seems to be the average. I have only checked one single candle power, but it seems to represent the candle power of the stations of the Consolidated Gas Company on different days.

By Mr. MATHEWSON:

Q. Does 24.19 represent the average at the bottom or the average of the whole number taken and divided by the whole number?

A. I would say it was the average of the averages. I have not added it up to check it, though.

Q. If that is so, it would not represent the true average?

A. No, because there would be a greater amount of gas made in the winter than in the summer, it would not be the true average.

By Mr. BURR:

Q. Was not the average candle power of gas tested at the works 25.35 candle power during 1905, see City's Exhibit 62, page 1404L.

Mr. MATHEWSON: Do you know whether that is an average of averages or whether it is made up by taking the total number of tests and averaging them?

Mr. BURR: It is the average of the averages.

A. There is a statement here, average candle-power, coal and water gas stations, 25.35, but I have not checked that.

Mr. MATHEWSON: It appears so in the exhibit is all you can say?

The WITNESS: Yes.

Q. That purports to be a statement of the monthly record of manufacturing averages and results taken from your books?

A. I don't know what the source is.

6089 Mr. MATHEWSON: Whatever the testimony shows.

Q. If that is true and if the average I have previously called your attention to was true, would not those together make altogether a

drop in candle-power of 2.25, assuming the purchased gas not to affect the candle-power?

A. That would represent a drop of the averages, it would seem to me, to be put in correctly.

Q. Of 2.25?

A. Well, I didn't add that in my mind.

Mr. MATHEWSON: I understand in getting the lower figure you took Exhibit 47, and took 22 candle as the average stated for the first six months, and took 24.19 as stated for the second six months, and got the average of those two sums, which is 23.1 candle?

Mr. BURR: Yes.

Mr. MATHEWSON: And the difference between that and 25.35 would be 2.25 candle.

The WITNESS: Of those figures, that would be as what is represented, yes, sir.

By Mr. BURR:

Q. You spoke of a single system of mains as an absurdity. As a matter of fact, Mr. Addicks have you not used it in 56 per cent. of the blocks of the City of New York, as appears by City's Exhibit No. 102, page 1653 see pp 6103?

A. Now, Mr. Burr, I do not want to quibble about that. But I do not think it is fair for me to assume that. I do not know exactly how to make that answer, but it is simply this, I have assumed in my reply that a single system of mains in every street in a city—that is all I said on that subject.

6090 Q. You would not be understood then as saying that a single main system is not in use in 56 per cent. of the streets of New York?

A. I do not know what the percentage is, but it is in a very large number of the streets. I expressly said that in the case where there was a- large as an eight-inch main on a street in one block, that it was an open question in my mind if it would be better to have a six-inch main on each side. That does not apply where a six-inch main is large enough to supply the block. It is more economical to have a single six-inch main.

Q. You would not say that in the city there are many streets in the remaining forty-four per cent. which could not be perfectly served by a single main system?

A. Of course, I do not doubt that is true, but, of course, there are many streets where there are several companies and a great many mains.

Q. And there is no doubt, as appears by Exhibit 102, that there are many blocks occupied by three, four, five and six mains of the Consolidated Gas Company?

A. I cannot carry that in mind.

Mr. MATHEWSON: Mr. Marks has put in an exhibit here, at great length, which shows exactly what proportion of the streets have two, three and four mains. The witness cannot tell off-hand.

Mr. BURR: I am only cross-examining on the statement he made, that it was an absurdity.

Mr. MATHEWSON: Putting a single main system throughout the City of New York is an absurdity, and he has expressly said that in many streets single mains can be used to advantage.

Q. Notwithstanding the condition I have pointed out to you with regard to the mains, you still say that the proposition to in-
6091 stall a single main system in every street of the City of New York is still an absurdity in your mind?

A. Now, Mr. Burr, I am a little doubtful in my mind what you mean by single main system and what I mean.

Q. What do you mean by a single main system?

A. One main in a street.

Q. That is what I mean.

A. I thought perhaps you considered a single company.

Q. A single main in the street?

A. Yes, I think it is absurd to attempt to pipe New York City in its entirety with one gas main in the street. I did not mean the expression offensively.

Q. I meant to ask you when I was talking about the oil, you spoke of the situation having presented itself here quite recently where you were all out of oil and were saved solely through the weather opening and oil that was not intended for you being appropriated and delivered to you at the station where the need was felt?

A. That is right.

Q. Is that good business management in your opinion?

A. Well, it is a situation of storage oil in the City of New York, and in that station we are erecting a half million gallon tank to endeavor to avoid that situation in the future.

Q. And the occurrence happened in the previous year?

A. True. It is with the greatest hesitancy, as far as I am concerned, that we have the additional supply there. I prefer to have the oil off the island as far as possible.

Q. I will ask you to look at Exhibits 47 and 62 again, Mr. Addicks, and see if these figures that I will now state are correct. You give the candle power drop (p. 5934) as follows:

December, 1905, 3.12 candles——

Mr. MATHEWSON: No, he did not give it; that is the exhibit you put in, is it not?

6092 The WITNESS: It is the exhibit Mr. Page put in there through Mr. Edgerton. No, December, 1905, we put in——

Mr. MATHEWSON: I thought you were referring to the Exhibit you have before you.

The WITNESS: No.

Q. You give candle power drop as follows:

February 1905, 3.75?

A. In February, 1905?

Q. Yes.

A. That is the exhibit Mr. Edgerton put in.

Q. Now, it appears from these Exhibits 47 and 62, that in December, 1905, the candle power was as follows at the various stations:

25.17 ..... 14th Street
26.51 ..... 21st Street
24.45 ..... 42nd Street
24.21 ..... 44th Street
24.42 ..... 99th Street

A. Yes.
Q. Then the total average at stations is 24.92?
A. Well, I have not calculated that. No, sir, I do not make it that. Substantially 24.95.

Mr. MATHEWSON: That would be the arithmetical average of those four averages.
The WITNESS: Of the five averages.
Q. You find the city's test to be 24.06 for December?
A. Where is that?
Q. That must be on Exhibit 62.
A. Yes, 24.06 is there. (Exhibit No. 47.)
Q. That makes the drop in candles .86 instead of your 3.12 candles for that month, would it not?
6093 Mr. MATHEWSON: But his was only 21st Street. Mr. Edgerton dealt only with the 21st Street station and not with all the stations.
The WITNESS: That is correct, so far as I can see.
Q. That is right, is it not?
A. So far as I can see.

By Mr. MATHEWSON:

Q. Is it not true that your higher figure of 3.12 came from the records of the 21st Street station only?
A. Yes, sir; 21st Street station only and the others were lower, Mr. Edgerton's figures were lower, if you will remember, in 99th and 44th Streets there was practically none.

By Mr. BURR:

Q. Taking 21st Street station, 26.51 candle power, the city test is 24.06, that would make the drop in candles 2.45 instead of your 3.12?
A. Yes. This is still 1905?
Q. 1905, yes.
A. Taking the 21st Street station?
Q. Yes; 21st Street station is 26.51 and the city test is 24.06, leaving the drop in candles 2.45 instead of your 3.12 for that month.

Mr. MATHEWSON: Not his, that is Mr. Edgerton's figure, you understand, and those are Mr. Edgerton's exhibits.
Mr. BURR: No, this is the map that you introduced yourself, December, 1905.
Mr. MATHEWSON: Very good, then it is ours.

The WITNESS: Where do you find the city tests for 21st Street.
Q. In Exhibit 62; is it not?
A. I do not find it. I did not see it for 21st Street. That is the

combined companies, that 24.06, that is not for 21st Street. 21st Street works, this is 26.51 and the city test is 23.39, not the amount which you are giving, which is the average of all the stations. The figure on Exhibit 47 is the combination of all the stations.

6094 Q. And the purchased gas, is it not?

A. If any purchased gas is tested at that station; but those are tested separately. If there is any purchased gas in it, yes, but the figures I have given are correct for the station, and the city test as reported for that station. That 23.39 is correct for 21st Street, city test.

Q. You say the city test is 23.39?

A. 23.39 is correct for the city test at 21st Street.

Q. And the candle power is correct, 26.51?

A. 26.51 is the candle power for the station. I gave that to the stenographer, so I have not that copy here. It is copied.

Mr. MATHEWSON: Well, it appears in the testimony.

The WITNESS: According to Exhibit 62, 26.51 is station test for December from 21st Street, which agrees with what appears for 21st Street as December, 1905, on page 5934.

Q. I understood you to say that the drop in candle power requires an increased amount of oil, is that right?

A. I should say that if there is a drop in candle-power it requires an increased candle-power to overcome that drop, which would naturally require an increased amount of oil.

Q. Now, referring a moment again to your oil contract, are you aware that in Philadelphia the company there divides its oil contract into three companies, the Gulf and Sun, of Texas, and the Standard Oil Company?

A. No, I am not.

Q. Or divides it between two companies, the Gulf and Sun, of Texas?

A. I don't know what the situation is.

Q. Do you know the amount of gas which is manufactured by the U. G. I. in Philadelphia, water gas?

A. No, I do not.

6095 Q. Have you never acquainted yourself with the production of that company?

A. I think Mr Marks gave certain figures, but I don't recall what they are. I have known it years ago.

Q. Well, I am informed that over seven billion feet of gas—including over five billion feet of water gas, is made by that company. Have you any reason to doubt that information or the correctness of that information?

A. I could neither confirm it or doubt it.

Q. Do you know anything as to the conditions prevailing in Philadelphia as to testing candle power? I understood you to say you believed they had the same candle-power as we have here, 22 candle-power?

A. My impression is 22 candle-power. I don't know whether that is correct or not, but I understand there are testing stations.

Q. Don't you know, as a matter of fact, that the companies in

Baltimore, Jersey City, Newark and New Haven buy most of their oil from independent companies?

A. No.

Q. You don't know that?

A. No.

Q. Do you know that these various companies just named make as much or more water-gas than the Consolidated?

A. No, I do not.

Q. I mean all combined?

A. No, I did not.

Q. Have you familiarized yourself with the sources of oil, the great body of it, where it comes from?

A. I don't know how much or how little I know about it. I think I know a good deal about it.

Q. Have you taken pains at all to familiarize yourself with the existing conditions in that regard?

A. I know more or less about it. I don't know how much I know or how little I know. It depends on how much somebody else knows as to how much I know about it. My principal source of information has been from census reports.

Q. Do you know these companies I have called your atten-
6096 tion to, Baltimore, Jersey City, Newark, New Haven and Philadelphia use Texas oil.

A. I do not know whether they do or not, but they wont be using it very long I think.

Q. Why?

A. From the evidence in this case Texas oil is about run out.

Q. Do you know what company furnished the oil to Boston in 1906?

A. During the current year?

Q. Yes.

A. I understand it to be the Standard Oil Company.

Q. Are you aware that during the year ending June 30, 1906, the Boston Gas Company used 3,971 gallons of naphtha at 5.52 cents and 6,213,964 gallons of other oils at 4.01, making a total of 6,216,-935 gallons?

A. I know Mr. Bemis' quotations and reports to that effect.

Q. And made 1,421,194,000 feet of water gas of about 22.9 candle power with that?

A. That would be the works candle power in that case, I presume. I don't know exactly how much they have made themselves. My memorandum don't go into the question of how much water gas they made.

Q. In confirmation of which I will refer you to pages 22 and 17 of the report of the Massachusetts Board of Gas and Electric Commissioners, and also to the letter of President Richards to whom you referred, of the Boston Consolidated Gas Company.

A. These figures do not quite check with the totals I have but I presume they are right. I see here the candle power 23.13 at the station and 22.7. The candle power given in the gas commission report is 19.37.

Q. The candle power given in the report is what?
A. 19.37.
Q. At what point?
A. Well, it says, the State Inspector.
Q. That is on the street, the mixed gas?
A. That is the testing station, wherever the testing station is.

6097 & 6098 Q. And what is referred to in the letter of October, 1906, from President Richards is the water gas to which we have made reference, is it not?

A. No, I don't think it is all water gas. I think it is water and coal gas mixed in one case. Pardon me. This letter says that it is water gas at the Calf Casture Station, and it says further, "And at out Commercial Point Station for the same period 22.7," but it does not say water gas.

Q. Assuming these figures to be correct, does not that mean and show a make of 4.37 gallons of oil per thousand feet of water gas?

A. I have not got the other figures. Do you want me to make a computation here from these reports?

Q. Yes, to verify that, if you will?
A. What was the total gallons of oil?
Q. 6,216,935.
A. Will you ask Mr. Bemis to add that up again and see what that is. I make it 6,217,935.
Q. That is right.
A. Did Mr. Bemis give the amount of carburetted water gas made?

At 5:05 P. M. adjourned to Thursday, January 24, 1907, at 11:30 A. M.

Last Exhibits:

Complainant's, 335.
State's, OOO.
City's, 236.

6099 Circuit Court of the United States, Southern District of New York.

CONSOLIDATED GAS COMPANY OF NEW YORK, Complainant,
vs.
JULIUS M. MAYER, as Attorney General of the State of New York; WILLIAM TRAVERS JEROME, as District Attorney of New York County; FREDERICK E. GUNNISON, JOHN C. DAVIES, and LUCIAN L. SHEDDEN, Constituting the New York State Commission of Gas and Electricity and the CITY OF NEW YORK, Defendants.

Before Arthur H. Masten, Special Master.

NEW YORK, *January* 24, 1907.

Met pursuant to adjournment.
Present: The Master, Mr. Mathewson, Mr. Burr.

6100 WALTER R. ADDICKS resumes.

By Mr. BURR:

Q. When we left off last night we were engaged in doing some figuring, and you undertook to complete your figuring this morning.

A. I have forgotten the exact question that was asked me last night.

Q. What I asked you was, assuming those figures to be correct, does not that mean and show a make of 4.37 gallons of oil per thousand feet of water gas, and you undertook to verify the figures I had previously given you.

A. Now, may I have the number of gallons of oil that Mr. Bemis thought the amount was, so as to check it?

Q. It was 6,217,935.

A. I have it 6,218,096. You will note that there was some naphtha used and marked as used, and also the naphtha unaccounted for was 161, which should be included in the amount used, so there will be two items to be added.

Q. We will accept your figures.

A. The whole amount of naptha, amounting to about four thousand gallons, I make it. By the way, how much is the gas made?

Q. 1,421,194,000 feet.

A. I have taken that same figure 1,421,194,000 and the result is about 4.38 gallons of oil.

Q. So that instead of the 4.37 that I asked you regarding, you make it 4.38?

A. Well, it is 4.375, which I would take as 4.38, it being slightly over .5.

Q. Calling your attention to your testimony regarding Lowell, will you look at the report to the Massachusetts Gas Commission, pages, 22, 19 and 17, and state whether from that report it does not appear that Lowell used 836,032 gallons of oil costing 3.13 cents per

gallon to make 189,118,000 feet of water gas, and from such report it appears that the candle power was 18 after this gas was mixed with 338,544,000 feet of coal gas.

6101 Mr. MATHEWSON: Don't think that I have laid stress on Lowell. I have not. You will remember it was brought out by Mr. Bemis and I merely asked Mr. Addicks in rebuttal about one or two statements. I did not introduce Lowell and have not claimed that Lowell is representative.

Mr. BURR: I am now endeavoring to show that the statements he made in his rebuttal were incorrect.

Mr. MATHEWSON: No, you cannot show that, because he did not make any.

Mr. BURR: I call your attention to his testimony at page 5965, in which he says: "The information is that the candle power is about 4½ candles to the gallon of oil in Lowell." So I want to show the contrary, if I can.

Mr. MATHEWSON: All right, I have no objection.

The WITNESS: Now, you gave me a lot of figures that were in various parts of this report, and it requires just as much work as it did in the other case. I ought to familiarize myself with the whole report, instead of taking out such figures as I am asked for in the question.

Q. Change that figure to 893,032 gallons of oil.

A. In other words you are including 60,000 gallons of naphtha this time, are you?

Q. Yes.

A. That is at 5.3 cents a gallon.

Mr. MATHEWSON: Of course, now, Mr. Burr, the figures you are asking the witness to make are from statements of the officers of this company made to the Massachusetts Gas Commission, and any other statements made by officers of the company I shall expect to present on the same theory, they are equally competent.

6102 Mr. BURR: You have. He has stated that the information he gets is so and so, and comparing the information contained in the official report to the gas commission——

Mr. MATHEWSON: If you want that, all right, only I want it to appear.

The WITNESS: Mr. Burr, in order to make this computation I have to take the amount on hand, the amount received and the amount used and see if the amount agrees before I can check up these figures, as I did in the case of the Bay State. In the first place, I find that considering the amount of oil on hand as of January 30, 1905, adding to that the amount received and subtracting what is said to be used, does not bring out the amount on hand at the end of the year, unless I have made a mistake in my calculation, so that is error No. 1.

Mr. MATHEWSON: That is in that report?

The WITNESS: That is the amount of fuel and other oil in the report.

Q. Does that appear by the report?

A. Yes. Now, if Mr. Bemis will kindly check these figures I will go on a little further.

Mr. MATHEWSON: Can we not finish this up here? I do not think we should chop up this particular company, I do not think we should take a little here and a little elsewhere about this company.

Mr. BURR: No, I want to finish it up myself.

Q. Well, I will not press that matter further, we will not take any time about it.

A. Mr. Burr, may I tell you something about this last question in regard to the amount of oil used in the Boston companies?

Q. Yes.

6103 A. I would like to state that I do not think that report is for a year, although it appears to be on the face of it, the annual report for that year. I think it includes a part of the previous June, a portion of June, 1905, as well as from July 1, 1905, to June 30, 1906. I have here the sworn statement of the accountants which agrees substantially with the Gas Commissioner's report and shows it is for more than a year.

Q. Now, take Fall River. Fall River you have——

Mr. MATHEWSON: I did not ask him a word about Fall River. I did not mention Fall River. It was Lowell and Boston and Lynn.

Mr. BURR: And you referred to other Massachusetts companies.

Mr. MATHEWSON: And he said he made no comparison with Lynn because part of that was electricity.

Mr. BURR: I will leave that out, then. By the way, I want to call attention to a correction that ought to be made at once, on page 6095. It reads, "Well, I am informed that over seven billion feet of gas—over five million feet of gas is made by that company." It should read "Over seven billion feet of gas including over five million feet of water gas."

Mr. MATHEWSON: At page 6089, while you have it right before you, you referred to City's Exhibit 102 as page 1563. It should be page 1653, and the exhibit referred to, of course, was the exhibit made up by Mr. Marks from his measurement of the maps.

Mr. BURR: Showing a duplication, that is all.

Mr. MATHEWSON: I understood it, yes, but even the percentage of duplication, of course, would be affected by the errors.

6104 Q. Now, calling your attention to Lynn, do you find from the same report to which I have called your attention, pages 22, 19 and 17, that Lynn used 1,007,166 gallons of oil, costing three cents a gallon, to make 206,197,000 feet of water gas, or 4.88 gallons per thousand feet, and that this water gas, when mixed with 230,842,000 feet of coal gas, yielded 18.2 candle-power, according to the State tests?

A. I also find an error in this report.

Q. Are you speaking of the report of the Gas Commission?

A. Of the Lynn report to the Gas Commission as copied here. I found that they use 20,913 tons of coals, which I assume to be gas coals, they say carbonized, which would make a make of about

10,000 feet to the ton or 209,000,000. This states that the coal gas made is 23,084,200.

Q. That has nothing to do with the water gas, has it?

A. Well, it has—yes, in this sense, that you have the total make which is composed of coal gas and water gas, and if the coal gas is only 23,000,000 we would have to subtract 23,000,000 from the total make which would make a very much larger amount for water gas. If the cypher is left off, I would like to know it.

Mr. MATHEWSON: I do not think we ought to be called upon to testify upon a report which is apparently incorrect and which counsel for the defendant or his witness thinks probably would be corrected by doing something else. It seems to me——

The MASTER: It seems to me that the value of this kind of evidence is not commensurate with the time it is taking, in view of our limited time.

Mr. BURR: Well, that is all I will ask on that point.

6105 Q. I will ask you, how do you reach your figures of candles per gallon for your company and for Lowell?

A. I had the figures from Lowell from a letter from Mr. Pease, who was the superintendent. So far as our company is concerned, from our own records.

Q. Do you know where the 28 degree oil used by your company comes from?

A. From the Standard Oil Company, that is as particular as I can give you.

Q. Does it not come from Texas?

A. 28 degree?

Q. Yes.

A. I did not know it did.

Q. Have you not used a good many millions of gallons of Texas oil in New York during the past three years?

A. Not in the Consolidated Gas Company, so far as I know of.

Mr. MATHEWSON: It comes from the Standard Oil Company, he says. Mr. Emery, after his test, said part was Pennsylvania oil and he thought that part was not, but that was as definite as he could be.

Q. Are you aware that most of the five million gallons of storage capacity which you stated was possessed by the Gulf Refining Company in New York harbor could be used for storing gas oil?

A. Well, any tank that is suitable to store any degree of oil can be used for any other degree of oil, I should think.

Q. Are you aware that that company now ships oil by barge in this harbor to some of the four companies in this city that you have testified about?

A. Yes, it is my general information that they do send by water; to what extent I do not know.

Q. To which company?

A. Well, my impression is that they do both to the Kings County

and the Rockaway Company, Far Rockaway—the Queens
6106 Borough Gas & Electric Company, I think, is the correct name for it.

Q. You refer to the difficulty of drawing deductions from Lynn, because it is a combined electric and gas plant. Did you observe that the profit from the gas alone at the price of 90 cents amounted to $160,414.42 during 1905-6 before the reduction to 85 cents on October 1st, 1906?

A. I would have no opportunity to observe that, Mr. Burr. The returns are not published, Mr. Burr. Mr. Bemis is the only one who has the advantage of having that information.

Q. Now, you stated in regard to Boston that the Boston Gas Company secures about $30,718 profit from the gas it sells to other companies and $130,000 from the electric business, or a total of $160,718, or about 4.6 cents per thousand feet of gas sold, and that without this profit it could not have reduced the price voluntarily from 90 cents to 85 cents from July 1st, 1906.

A. I do not remember making that statement in that form, Mr. Burr. My statement was that without that they could not make the profit they did in that year without an additional price of gas, equal to 4.6 cents. I do not think I referred to the question of their reducing it.

Q. As a matter of fact, did not the company last year, selling gas at 90 cents, pay 8 per cent. dividend on its stock of $15,124,600?

A. They paid about 8 per cent. dividends. I would say also in regard to electric light, from glancing over this report last night it would seem to indicate that they made a little more on their electric light than the figure I gave here, but I was not able to check it. If you will pardon me, I will check that here with this other report. From the statement I gave yesterday from the president I had $130,-
000 for the electric business. According to the computation I
6107 have just made from the report of the audit by Harvey Chase & Company, if I have made no mistakes in the computations——

Q. Where does that audit appear?

A. In the publication according to law in the Boston papers. Mr. Bemis, I think, has a copy of it also. I find that the expenses for electricity were $87,405.20 and the receipts for electricity $225,135, and the difference between those two sums to be $137,729.80. I used $130,000.

Q. Then every 1 per cent. dividend means $151,246, does it not?

A. It varies from time to time, Mr. Burr. That may be true, but their notes payable increased over seven hundred thousand dollars for that year, which would affect it as far as the earnings are concerned. I merely call attention to that, and the capital is slightly changed for this year over last year.

Mr. MATHEWSON: You mean capital stock?

The WITNESS: I will not be sure about that. No, the capital stock is the same.

Q. Well, therefore a reduction of $160,000 in the profits would

mean a reduction in the dividend of 1.6, or a reduction to 6.94 per cent.?

A. Pardon me, I have not answered your other question yet. May I answer that before I take up the other one?

Q. Yes.

(Question repeated as follows:)

Then every 1 per cent. dividend means $151,246, does it not?

A. That is correct.

Q. Therefore a reduction of $160,000 in profits would mean a reduction of the dividends of only 1.06 per cent., or to 6.94 per cent., would it not? It would mean a reduction of 1.06 per cent., or from the 8 per cent. to 6.94 per cent.

6108 Mr. MATHEWSON: But it is not shown, Mr. Burr, that the 8 per cent. was when the company had a large surplus from which it may have taken, and undoubtedly did take, I think, a portion of that, as will be made apparent.

Mr. BURR: We have only asked the question.

Mr. MATHEWSON: Now, you ask if the earnings be reduced 1 per cent. They have no relation to each other. One is earnings and the other is dividends paid.

A. Without working it out carefully, 1 per cent. being 151 and for 9,000 more would be less than one-tenth. I imagine the figures are correct, so far as a reduction in the amount applicable to the dividends of that amount would produce a reduction in the probable dividend in the amount stated.

Q. But if the company did not have an electric light business, on that sale of gas to the other companies it would need less capital, would it not?

A. Well, Mr. Burr, you will see from the balance sheet of the company or from any statement of the company that the property of the company is very much in excess of the capital, and whether it had the electric light plant or not it would have at least as much capital as it has now, still a large surplus.

Q. Well, the capital is based on both plants, gas and electric light, isn't it?

A. Undoubtedly. It is based on the sum of its assets unquestionably.

Q. Well, assuming it needed less capital because of the absence of electric light business or the sale to other companies, the gas produced would not average anything like 1 per cent. on the gas capital, would it?

A. Well, that is a question of what the percentage return, $130,000 or $137,000, whichever may be correct——

Q. I mean assuming there were no profits from the electric
6109 light or gas?

A. Well, there would still be a less cost. It would depend upon the profit made from the electric light end of the business, and according to my rough computations here that has very much larger return than on the gas. I think that affects the situation.

Q. Well, you took all the profit from the gas, didn't you, in the reduction that you made?

A. Yes, but I am assuming now you are going to take all the profit off, the return of the capital invested in the electric light business, suppose it is $700,000, and $70,000 would be 10 per cent. a year for profit but this is $130,000, showing there is 15 per cent. or more profit on the electrical end of it, capital invested. Of course, that would leave out the capital invested in the gas business.

Q. The point is that if you are going to take off from the dividends you must assume there is less capital upon which dividends are to be paid?

A. If the capital were exactly the same as the assets that is undoubtedly true, but that is not the case here?

Q. Now, before the Massachusetts Gas Commission, in the hearing two years ago about the consolidation and about the prices of gas of the Boston companies, you presented a table, did you not, showing that the depreciation on the electric plant was 3 per cent. on the then electric assets of over $800,000, or $24,000 odd and should be included in the cost of electric light, is that so?

A. I don't recall that. I may or may not.

Q. Assuming that it be so, that would make an allowance of 6 per cent. on these assets and would amount to $49,000, would it not?

A. I don't think it is necessarily a parallel case, because that Brookline Electric Company at that time, which was with the gas, was fully capitalized to its full value; that is to say, the assets
6110 of the company were not exceeding the capital stock or certificates of indebtedness, so that while that might be done at that time it might not necessarily be done at this time. If you will let me refresh my memory by referring to the record I might be able to answer.

(The witness is handed a book.)

Q. Well, Mr. Addicks, we won't stop now——

A. I want to see if this is my testimony. If you will show me that it is first. I don't say I did not present the table. I don't recall presenting the table and this seems to be the testimony of Robert Grant and not my own at all.

Q. Who was Robert Grant?

A. I think he was auditor of the company at that time, and he states that his 3 per cent. is taken from Mr. Bemis' figures; 3 for electricity and 5 for gas.

By Mr. MATHEWSON:

Q. Making a total based on Mr. Bemis' assumption?

A. Pardon me. Five cents for gas and 3 per cent. for electricity.

Q. Do you mean five cents Professor Bemis allowed for depreciation per thousand feet of gas?

A. Yes, sir; that is as I understand what is stated there.

By Mr. BURR:

Q. You stated, and I believe it is generally conceded, that the maximum price of 90 cents has been voluntarily reduced by the Boston Gas Company to 85 cents in July, 1906?

A. I understand that has been done.

Q. And it continues to sell at that price although, as you say, it has a right to restore the price to 90 at any time?

A. It has not made any change so far as I know up to the present time.

6111 Q. Did you not testify in Boston on the investigation before the State Gas Commission, January 30, 1905, that after making proper allowance for depreciation $1.10 would have to be charged to yield 8 per cent. dividend?

A. I would like to have my testimony pointed out to me so that I can refresh my mind. It is three years ago.

(A book is handed to witness.)

The WITNESS: This table looks familiar. If you refer to page 694 of printed testimony, hearing before the Board of Gas and Electric Light Commissioners in relation to production and price of gas in Boston, and published November, 1905, by the City of New York library——

Q. That is the book I refer to. Now, calling your attention to that, is it not true that less than two years ago you testified that after making proper allowance for depreciation $1.10 per thousand cubic feet of gas would have to be charged to yield 8 per cent. dividend?

A. My statement in this table as shown me is as follows: It is assuming a combination of then independent works in the city of Boston under the then existing conditions of expense as existed, 1903-04, I say that allowing for the cost of labor and material and allowing ten cents for contingency that the difference between one dollar and that amount, considering the fixed charges, would only yield 24.74 cents per thousand cubic feet; that the amount required to pay the interest and dividends as then existing amounted to 41.56 cents, leaving a deficit of 16.82 cents per thousand.

By Mr. MATHEWSON:

Q. Including dividends, of what per cent., 10?

A. Including dividends of 10 per cent. and interest on such outstanding obligations as then existed.

6112 By Mr. BURR:

Q. Then I fairly stated what you contended at that time, that it would take, as you say, under the conditions as they so existed—that it would require the company charging $1.10 a thousand cubic feet of gas in order to pay 8 per cent. dividend?

A. Well, it does not show that specifically on that table; it shows simply deficit in earnings of 16.83, which would make it 1.1683 and not 1.10.

Q. We won't be technical about it. Didn't you testify before the Gas Commission, as I have stated?

A. Not on the table shown me by Mr. Bemis. Now, there is another table on page 693, which shows that the price of gas, 1903-04, cost, plus 10.5 cents and 8 per cent. dividends, 1.1066.

Q. 1.1066 would be necessary to be charged by the company per thousand feet of gas?

A. Under the then existing condition of things in Boston.

Q. Now, as a matter of fact, hasn't that company paid 8 per cent. dividends for the year June 30, 1905, with a price of only 90 cents?

A. That company did not exist at that time. That was a supposititious company.

Q. I mean to say the consolidation of these companies?

A. The consolidation of those companies did take place, and they have paid 8 per cent. dividends last year on $15,124,600, and I might add that the president has stated——

Q. No, just answer the question. And the price was 90 cents?

A. Without any allowance at all for depreciation of plant.

Q. Did you not also state at the same investigation, at page 686, 694, that at $1.00 per thousand cubic feet the dividends could only be 4.54 per cent.?

A. That is covered by my answer before in regard to the deficit of 16.82.

Q. And the fact still remains that at 90 cents it paid 8 per
6113 cent.?

A. These companies did not exist.

Q. The fact still remains that these consolidated companies the next year paid 8 per cent. dividend, the price being 90 cents?

A. The Consolidated for last year, in 1905-6, my figure is for 1903-4. This is about the 1st of January, 1904, and the year ending June 30, 1906, they paid 8 per cent. dividends without depreciation.

Mr. MATHEWSON: I think you are confusing earnings and dividends, Mr. Burr, which have no necessary relation, certainly not so close as that.

Q. Is it not true in warm weather gas may have a candle power at the burner equal to that at the works, whether due to the picking up of enriching material in the holders and mains and services, or from whatever the cause may be?

A. I think that the station candle power in the summer is apt to run more closely in the burner—consumer's burner—than it is in winter; the same observer taking a candle power in each case.

Q. In the Boston gas case before this Commission, at this investigation to which I am still referring, you added one-half cent for bad debts and ten cents per thousand feet for depreciation and contingencies, did you not?

A. Yes, sir.

Q. As actual operating expenses you added those two items to carry operating expenses?

A. As the amount to be allowed on the cost of gas for a given year, as representing what the cost of gas would be on that period.

Q. On page 778 of the record of that investigation you were asked:

"So far as you know this is the only time that ten and a half cents has been added on the cost of manufacturing and the cost of
6114 distribution by your company?"

And did you not reply:

"No, I cannot answer that question; I cannot say yes or no. Q. Why not? A. Because I cannot remember; that is the reason. Q. You don't know of any other company that does it? A. No."

You so testified did you not?

A. That sounds very much like it, only I thought I added that Mr. Bemis did.

Q. Do you know now of any such companies?

A. Oh, there are a great many of them, yes, sir.

Q. Well, the Boston Company, for one, does not do it, does it?

A. The Boston Company now?

Q. Yes.

A. Well, the Boston Company made a statement before the Gas Commission within three weeks that at least five cents should be allowed for depreciation.

By Mr. MATHEWSON:

Q. Through Mr. Rchards?

A. Through Mr. Richards.

By Mr. BURR:

Q. But they have reduced the price and they are not doing it?

A. Well, they have a very large reserve fund between capital and value of the plant. They can throw away a very large portion of their plant without involving their capital at all. The amount of ten cents a thousand for forty odd years at the present output. And besides, they make these returns on the electric light and the gas amounting to $170,000, which you have neglected entirely in
6115 asking me these questions about earnings in Boston.

Q. You were asked still further by the Commission with regard to this proposition presented by you—asked on page 777: "Q. Do you know of any company in the United States, possibly excluding your own, which takes the price of gas and the cost of distribution and adds ten and one-half cents to cover these things? A. I don't know."

A. I think that is right.

Q. Then you were asked: "Q. Then this is an original idea on your part, that that is a fair leeway?" and you replied, "That is my judgment." Is that right?

A. I think so.

Q. You were asked, "Q. Do you know of any other companies that have adopted this same basis for arriving at the price to be charged to the gas?" and your answer was, "I don't remember."

A. Yes, sir. I won't say definitely whether that was the way I replied to it, but it sounds familiar.

Q. Well, you have the record before you?

A. Well, I know, but it is a printed record from the original record. This is a reprint in New York from the evidence in Boston.

Q. What was the date of your testimony in Boston?

A. I think January, 1905.

Q. Well, now, you testify you think, judging from the record there and your own recollection, that you did not remember of any other company that made such a charge?

A. At this late day——

Q. Do you remember any company that existed at the time you gave your testimony that made that charge?

A. You mean at that time?

Q. At that time.

A. The only thing I know is Mr. Bemis' statement that Mr. Vanderpool said five cents should be allowed for water gas and ten cents for coal gas, whether they made that charge on the books I don't know personally.

6116 By Mr. MATHEWSON:

Q. And you know, Mr. Bemis testified in Philadelphia that ten cents ought to be allowed?

A. He testified in Philadelphia that ten cents should be allowed on the coal gas. He testified in this case.

By Mr. BURR:

Q. That was ten years ago.

A. In Philadelphia, yes. But the testimony in regard to Mr. Vanderpool was only 1905.

Q. Mr. Bemis has explained that as a quotation from somebody else's statement already and given a full explanation in regard to it. But I want to press the question, do you know of any other company besides the Consolidated Gas Company charging this ten cents as against the cost of manufacture and distribution of gas?

A. Yes, I do know of other companies. I cannot enumerate them.

Q. You don't remember their names now?

A. I know a man who has charge of a large number of gas companies and he tells me he is doing the same thing. Mr. Cowdry testifies to ten in Chicago; whether he is doing it in St. Louis or not I don't know.

Q. You don't know whether they are doing it or not at Chicago or St. Louis?

A. I don't know whether they are doing it at St. Louis. This gentleman showed me his accounts—a list of his accounts in which ten cents appeared, so I know from his statement that he is doing it. A man does not usually have access to the books of other companies or information of other companies.

Mr. BURR: I have found that to be the case.

Mr. MATHEWSON: But you were not in the gas business, Mr. Burr.

6117 Q. Do you know what the companies in Buffalo that Dr. Humphreys is connected with have reported as to the cost of oil?

A. No, sir; I do not.

Q. Or at Syracuse?

A. Unless Syracuse is one of those eight companies, but I don't recall it now. I did see the Syracuse testimony, but I don't recall what the price of oil was. I have that testimony, but I don't recall the amount.

Q. You said something, I think, about you would have to know

the penalties which were inflicted upon companies for transgressing the law regarding candle-power, as one of the elements of the thirteen elements or factors that you referred to in making up your mind as to what the conditions actually were regarding candle-power and oil in that direction.

A. In this way, if you want the explanation. If the penalty of a company was around one dollar for violating the law they might carry one candle-power. When the penalty is one thousand dollars for violating the law they could not afford to risk the one thousand dollars on the material or the closeness with which they tried to adjust themselves to the law, and if there was no penalty whatever and no inspection they might use a jet photometer in the works, and so the candle-power might or might not be different or might vary three or four candles.

Q. I merely wanted to call your attention to penalties that are imposed under the English law, and ask you if you are familiar with them. I have special reference to the book entitled *Recson's Complete Gas and Water Acts,* 1817-1902, with full index, by which it appears, on page 338, regarding the candle-power penalties for failure to keep up the candle-power:

"If on any day the gas supplied by the company at any testing place is of any less illuminating power than it ought to be
6118 under the special act, the company would be liable to the following forfeitures:

"For the first half of a candle of defective power forty shillings and for the next and every subsequent candle of defective power a sum not less than twenty-five pounds, and not exceeding 100 pounds, having regard to the relative quantities of gas manufactured by the respective companies."

Are you familiar with that?

Mr. MATHEWSON: You haven't the whole thing there by any means. You have not read the whole act. There is a qualifying or saving clause there which you have not read.

Mr. BURR: Very well, I will read the remainder of it.

"Provided always, that the controlling authority of any testing place having recovered one forfeiture in respect of defective illuminating power in the gas supplied by the company at one testing place on any day, shall not be entitled to any further forfeiture in respect of illuminating power by the gas supplied by the company at any other testing place, of such controlling authority on the same day."

Mr. MATHEWSON: We have five testing places to the Consolidated.

Q. Don't you know there are four testing places in London for this same company, for the South Metropolitan?

A. No, I don't know how many testing places they have. I am more or less familiar with that act. I have read it before, but what answer do you want me to make as a basis of that?

Q. Well, I ask particularly whether in making the answers which you did with regard to oil and the candle-power, you had in
6119 mind this provision regarding the infliction of a penalty under the English law, the assumption having been all

through this case by the Consolidated and by counsel, it seems to me that the penalty imposed here was greatly in excess of any other penalty that was imposed in any other case.

Mr. MATHEWSON: Grossly so.

A. I had in mind when I made that answer any penalty established by any statute at any place, and I said that the amount of the penalty would have a marked influence on the quality of material that you would use in your manufacture and the closeness with which you would run to the legal requirements. On the basis of what you read the New York penalty is very much heavier, as I read it. It is claimed that we can be fined for every violation, and there is a test made now for every station. I think there are five in number, so that would make five thousand dollars on any one day, but unless I am in error, the law does not say that it should only be once a day, either, but I think as often as the inspector may see fit, and they may increase the number of testing stations, and I don't know where it will end, and there is no leeway whatever, and besides that the burner is not specified. In Massachusetts it says it must be the best burner applicable to the gas, and the consequence is they use a table top tip. If you give one-half or three-quarters of a candle power higher than other burners. It makes a great difference how the law is drawn and its application. I think your first fine here of 25 shillings is about $10.

Q. Did I understand you yesterday to say that as a result of the Astoria plant that the amount of oil that you will need will be decreased or diminished?

A. I said if we could make coal gas under the present law,
6120 we are restricted in the amount of coal gas we can make, because the candle power is in excess of what you can commercially supply coal gas—in other words, it is not commercially possible to supply coal gas exceeding a candle power of 19 candles.

Q. You have undoubtedly studied this question of candle power very extensively. Are you familiar with the fact as stated by the Brooklyn Union Gas Company that for several years of the past five years they have been distributing gas at 25 candles?

A. They are not making a foot of coal gas, as I understand it; not a foot. I don't question it in water gas. It is coal gas I am talking about. Now, will you give me that other question again, I don't think I answered it.

The STENOGRAPHER (reading): Did I understand you to say yesterday that as a result of the Astoria plant that the amount of oil that you will need will be decreased or diminished?

A. For every thousand feet of coal gas we use at legal candle power we would probably use two or more gallons of oil under the present laws.

Q. In the future?

A. No, now. We do that now, according to the testimony. That if they made a thousand feet of water gas it would be something over four gallons, so that as coal gas displaces the water gas we use that much less oil per thousand feet, but if we had eighteen candle power it would be very much better because it takes a very large quantity of

oil to get this 22 candle power which cannot be operated outside of carburetted water gas, and therefore we must make the water gas in certain proportions.

Q. But you won't need to make so much water gas with coal gas in Astoria?

A. Yes, sir, because we have to enrich our coal gas with
6121 water gas to get 22 candles. We cannot sell 22 candle coal gas unmixed with water gas. It will smoke every ceiling so we cannot sell the gas.

Q. Do I understand you to mean that no-withstanding the operation of this coal gas plant which started up December 3d, your supply of oil will not diminish but rather increase?

A. That depends entirely on the relative amount of coal gas and water gas. That might diminish to some extent—how many thousand gallons I would not like to say.

Q. Referring for a moment to the drop candles to which your attention was called yesterday, you have given the apparent drop of the 21st Street station as 3.12 candles between that station and the city test office for December, 1905. You figured the average drop between all the stations as against the city authority as .86 candles. Does not this show a very great difference between the candles total average of oil gas and the drop 3.12 candles you have given for 21st Street? In other words, as a commercial proposition, is not the actual and plain average loss of .86 candles for December, 1905, on all the gas of the Consolidated Gas Company very much less than might be deduced from the stated loss of 3.12 candles at the 21st Street station?

A. That is a very involved question. I don't know whether I followed it all. In the average candle power involved appears the average of the coal gas as well as all the water gas. I don't know how that phase of it would affect the entire averages, but your general average is lower than 21st Street, but please do not forget that 44th Street and 99th Street do not show the same drop as 21st Street in December; materially less.

Q. One question with regard to the mains——

A. May I put in one thing apropos? I was asked yester-
6122 day about where our candle powers are taken. Those are taken at the outlet of the holder, not at the inlet, and invariably it is a candle power of the gas made at the station, with the exception of 14th Street, where it is a mixture of other gases to raise the candle power of 14th Street gas.

Q. Your understanding is, and your information is, that at one time here there were various gas companies competing together for business in the same territory?

A. I so understand it.

Q. There was a gas war here?

A. Yes, sir.

Q. And so in that territory there are the mains and piping of the various competing companies?

A. I understand that to be true.

Q. And those mains and pipes still remain in those territories?

A. They are supplying gas from them to other companies as they exist to-day. The company has its own mains and is supplying gas from its own mains.

By Mr. MATHEWSON:

Q. To its own consumers?
A. To its own consumers.

At 1 P. M. a recess was declared till 2:30 P. M.

6123 After Recess.

Mr. Kirby also was present.

WALTER R. ADDICKS resumed.

By Mr. BURR:

Q. There is just one question I want to ask you with regard to the uncorrected gas and corrected gas. You say in 1905 the Consolidated Gas Company obtained candle power per gallon of oil as follows: Uncorrected gas, 5.73 candle power to 5.98 candle power?
A. Yes, water gas works.
Q. Corrected gas 5.42 to 5.74 candle power?
A. That is right.
Q. Refer to City's Exhibit 62, page 1404-L, and explain this. Do you not find in 44th Street 5.13 and in 99th Street 6.88 candle power per gallon?
A. I do not.
Q. There it is; is not that 44th Street 5.13 and 99th Street 6.88?
A. My statement is for the entire year, Mr. Burr. Your statement is for one particular month. Mine is the average for the entire year.
Q. You do find it there for the twelve months?
A. Yes, but my figure is 5.42 and this figure is 5.42.
Q. Then you wish to be understood that the statement you made is for the entire year?
A. The average for the entire year of twelve months.

Mr. BURR: I am not going to ask Mr. Addicks to do any computation, but I want to read on the record certain statements from the report of the Massachusetts Gas Commission with respect to Lynn and Lowell.

Mr. MATHEWSON: I think I shall object to that; I do not see why you should read from it. If you have a question to ask the witness, that is another proposition.

6124 Mr. BURR: I will hand you the report and ask you to verify it.

Mr. MATHEWSON: I thought you withdrew that, that the figures were not correct and were not checked. Is it worth while to put some figures on this record which may be incorrect?

Mr. BURR: These figures are correct, and it is important, because it is a comparison between the value, so far as the result is con-

cerned of the cheaper oil in Boston and the oil used by the Consolidated Gas Company.

Q. With respect to Lynn, Mr. Addicks, do you find on page 22 of the return as it appears in the report of the Massachusetts Gas Commission for 1905, that the company had on hand at the beginning of the year 59,200 gallons, during the year 1,013,966 gallons, carbonized 1,007,166 gallons and had on hand at the end of the year 66,000 gallons?

A. That appears there, yes.

Mr. MATHEWSON: It appears in what? Is that the original report?

The WITNESS: In this copy.

Mr. MATHEWSON: In what copy?

The WITNESS: A copy of the report?

Mr. BURR: To which reference has been made all through this hearing.

Mr. MATHEWSON: But they were found to be incorrect.

Q. Do you find the average candle power determined by the State inspector on page 19 with the mixed coal and water gas at the State testing stations to be 18.2 candle power?

A. It so appears on this page.

6125 The MASTER: Is that copy of the report now shown the witness one that has been used heretofore in this proceeding?

Mr. BURR: Yes.

The MASTER: And marked in evidence or for identification?

Mr. BURR: No, but it was the report referred to by Professor Bemis in giving his testimony.

The MASTER: What is there to authenticate it? Is it a sworn copy? What proof is there as to the correctness of those manuscript entries?

Mr. BURR: Professor Bemis swore as to the manner in which that copy was made in the office of the Commissioners of Gas in Boston at the time he was examined.

The MASTER: Is it certified to be a correct copy by the clerk?

Mr. BURR: And he testified as he went there and verified the figures on water gas, oil and candle power.

Mr. MATHEWSON: I do not remember whether he did or not. The oil figures for one of the companies that Professor Bemis has produced this morning were confessedly incorrect, so the paper was withdrawn by counsel.

Q. Referring to the printed report of the State Gas Commission in Massachusetts relative to Lynn on page 82 of the Appendix do you not find that the total assets both gas and electricity were $1,792,602.11 and the gas profits $136,344.26, that is for 1904-5?

A. This report that I have here in manuscript is for the year ending June 30, 1906.

Q. Yes.

A. Whereas the report you have just handed me is for the year ending 1905, the year before.

6126 Q. That is right.

A. They are not the same reports at all, they are a year apart.

Q. That is right.

A. You want to know whether on page 82 of the Appendix the total assets on the books of the company are $1,792,602.11?

Q. Yes.

A. That is correct.

Q. And the gas profits $136,344.26?

A. The gas profits as reported, $136,344.26.

Q. As a matter of fact, you see that the gas and electric assets are separately given there on that page, and on the page preceding?

A. They are given—they are not separately given in two totals, but they are comprised in the $1,792,602.11, and can be separated to a great extent.

Q. You observe that among the electric assets on pages 81 and 82, real estate, $118,719.63?

A. That is the electric real estate.

Q. Steam plant, $131,928.88?

A. Yes.

Q. Electric plant, $127,855.48?

A. Yes.

Q. Electric lines, $159,676.80?

A. That is correct.

Q. Transformers, $12,570?

A. Correct.

Q. Meters, electric, $19,623.39?

A. Yes.

Q. Arc lamps, $5,500?

A. Correct.

Q. Due for electric light and power, $29,904.80?

A. Correct.

Q. And there are other items also there, are there not?

A. Correct. Fuel on hand, electric, $2,186. Carbons on hand, $1,774. Incandescent lamps on hand, $1,337. Globes on hand, $318. Electrical fixtures on hand, $242.78. I left out the cents in those other cases. The horses and wagons are not divided. Sundry accounts due the company, I do not see that that is divided, nor do I see the materials on hand for electric, other than those I have mentioned, if there are any.

6127 Q. Calling your attention to page 17 of the report for the year 1905-06, of the Massachusetts Gas Commission with regard to Lynn, if we assume the correctness of those figures we had under dispute this morning and that the amount of water gas is correctly given there at 206,197,000 feet, on page 17 of the return, could you not readily find the gallons of oil used per thousand feet by dividing the oil by the water gas made?

A. Yes.

Q. On page 22 of the Lowell return will you simply read the figures on naphtha and other oils on the two marked lines which are handed you?

Mr. MATHEWSON: That is Professor Bemis' copy of gas for the year ending June 30, 1906.

Mr. BURR: Yes.

A. Mr. Burr, are you going to ignore the unaccounted-for oil?

Q. Will you just kindly read those two lines?

A. You want that which is under the third column from the left-hand side headed——

Q. Under each column?

A. Then I did not understand the question.

Q. On page 22 of the Lowell return will you simply read the figures on naphtha and other oils on the two marked lines which I handed you and the headings above each column in which they appear.

A. Naphtha on hand, June 30, 1905, 44,930 gallons; received during the year, 20,034 gallons—I cannot read the figures—it appears to be 20,034 gallons; carbonized during the year 60,009 gallons; unaccounted-for, blank; on hand, June 30, 1906, 4,955 gallons; average cost per gallon of each kind used at the works, 0.053; other oils on hand, June 30, 1905, 98,492 gallons; received during the year, 1,114,027 gallons; carbonized during the year, 833,033 gallons; unaccounted-for, blank; on hand, June 30, 1906, 373,622 gallons; average cost per gallon of each kind used at the work, .0313.

6128 Q. I have just one other question to ask you. You observed on page 17 of the return for 1905-6 that they made 338,544,000 feet of coal gas and 189,118,000 feet of water gas, and on page 19 you will observe that the average candle-power of the mixed gas at the State testing station, away from the works, was 18, and you observed also that Mr. Pease, the Superintendent, from whom you have quoted, wrote that the candle-power of the water gas before mixing with the coal gas was 21.8

A. The statement here is, as you have stated, that the candle-power of the water gas and so forth, average of candle-power before mixing with coal gas for year ending June 30, 1905, was 21.08.

Mr. MATHEWSON: That is at Lowell.

The WITNESS: Yes, Lowell is what I have been reading from.

Mr. BURR: That is all.

Redirect examination by Mr. MATHEWSON:

Q. The mains of the Consolidated Gas Company which were in the streets were here first before the competing companies, were they not, unless some Mutual mains in the streets of New York City?

A. Yes, sir. The Standard and the New Amsterdam were after the Consolidated, but I don't know about the Mutual. I don't know whether that was before or after. The Mutual was before.

Q. Referring to Lowell, did your statement that at Lowell they could average only about 4½ candle power per gallon, rest on your own recollection, or have you a letter from Mr. Pease on that subject stating that in explicit terms?

A. I have a letter from Mr. Pease expressing it and stating it in explicit terms?

6129 Mr. BURR: I have no objection to that letter being introduced in evidence, providing this letter is also introduced.

Mr. MATHEWSON: You put it in substantially in your question.

Q. On December 13, 1906, Mr. Pease wrote, did he not:

"I am trying it under various heats and conditions, and can average only about 4½ candle power per gallon"?

A. He does.

Q. Now, what does the Consolidated Gas Company get in candle power per gallon from their oil?

A. With uncorrected gas from 5.73 to 5.98, depending upon the station.

Mr. BURR: That you have already testified to.

The WITNESS: It is simply a duplication.

Q. Take the subject of Lynn, assuming the statement to be correct as it has been quoted to you from this report by Professor Bemis or called to your attention, how many candles per gallon does the Lynn oil produce?

A. The figure I have here is 4.88 gallons and candle power of 25.87. Is that the correct candle power in gallons that we have in the testimony?

Q. No, I think not. 18.2 was the official test, was it not?

A. Mr. Burr, have you given us the candle power of the Lynn gas?

Mr. BURR: No.

The WITNESS: It has not been given. It has only been given for the total gas, that would be mixed gas, and we have not the water gas, and it would be very much lower.

6130 Q. It would be very much lower, yes.

A. Yes.

Q. It is possible without having a record of the unaccounted for oil to make exact determinations of figures that are worth anything?

A. No, sir.

Q. In reference to Lynn, the profits as you have been made to read them are merely a statement purporting to be presented by the company to the State Board of Gas Commissioners of Massachusetts?

A. I so understand those reports.

Q. You do not understand how the expenses were divided as between the electric plant and gas plant in figuring the profits of either one, do you?

A. No.

Q. Would not that have a very material effect upon the cost of gas or electricity as either one or the other might be favored in charging expenses or salaries?

A. It would.

Q. Is it possible without that to make any comparison of value in your judgment?

A. No.

Q. As to the value of the property in Lynn have you any information as to whether the assets have been charged down by depreciation or otherwise?

A. I have not, no.

Q. That would be a material element, too, would it not?

A. It would.

Q. You were asked in reference to the employment of coke of the New England Coal & Coke Company in Boston for various purposes and you stated that large amounts were sold to locomotives, about 50 per cent., I think, and considerable other amounts for industrial enterprises, factories, &c. Let me ask you whether the coke that is produced by the New England Coal & Coke Company is of the same character as that produced in New York or whether it is denser?

A. It is not the same, and it is denser.

Q. More like anthracite in that regard, is it not, and of better use for those purposes?

A. More like anthracite, so far as its fuel use is concerned,
6131 that is to say it can be used in place of anthracite and also in place of what is known as Connellsville coke, it is of the same character as Connellsville coke.

Q. Which would not be true to the same extent, would it, for the coke produced in New York?

A. It would not.

Q. You said coke was used in the suburban service in Boston. As a matter of fact there is a very large suburban service running from the various stations, is there not, in the immediate vicinity of Boston?

A. There is.

Q. Is it not so to a much greater extent than in New York?

A. In Manhattan proper, yes sir, I think so.

Q. You were asked as to Mr. Edgerton's system, and whether you could not get more gas under a high pressure through a small main. Assuming that to be the case, would that be any argument, in your opinion, in favor of taking up and throwing away or disusing your large mains which at present exist?

A. No.

Q. It would not be economical to put in small mains to meet that situation, would it?

A. No, sir.

Q. How about the expense and cost of a high pressure main of any size?

A. Size for size a high pressure main is more expensive than the present main.

Q. Would you not have to use wrought iron mains?

A. Mr. Edgerton, I think, assumed wrought iron mains in his proposition, but if he did not we would have to use wrought iron mains, and I am assuming we would use them.

Q. When you said that the gas mains would be as safe under the pressure as water mains, to what did you refer?

A. Merely the factor of safety on a given type, for a given pressure would be the same whether it was water or air or gas.

6132 Q. Do you mean to say that in case of a break that there would be no more danger in one than in the other?

A. Not for one moment.

Q. You were asked in reference to generators and whether you would not mark off something for depreciation if you knew that they would depreciate and require the replacement of parts. That situation exists the moment you start a new generator, does it not?

A. Yes, sir. As a matter of fact——

Q. And where parts are replaced from time to time with new, or as good as new parts, the generator is as good as ever?

A. Yes, it maintains at least 100 per cent. in value; in my judgment, a generator which has been actually in use is better than one that is starting up in use. As a matter of fact the $2,100 could not have referred properly to a generator. It probably referred to retorts, and, as a matter of fact, retorts are not repaired all at once every three years, but year in and year out, some one year and some the next, so it leaves an even distribution, as a rule of expenses of that nature.

Q. And if there is any depreciation or any requirement for replacement this is not met, I understand it to be your view, from your previous testimony, that a fund should be set aside to meet that.

A. For current renewals and replacements.

Q. And final renewals?

A. Yes, pardon me—for extraordinary renewals and final renewals and replacements, not for current renewals.

Q. You were asked whether or not you would reinstall the 14th Street benches at Astoria and you stated you would not?

A. I did.

Q. Let me turn the question around and let me ask you if you would install the Astoria benches at 14th Street as the situation is now?

A. I would not.

Q. Do you consider it an economical thing to do?

A. We have the 14th Street already in use, and I do not believe in installing the Astoria benches alongside the 14th Street
6133 works would reduce the cost of gas, considering the capital in use there and the additional capital required to make the change.

Q. Reference was made to the carry-ng of crude oil in the pipe line. Your understanding is, is it not, that it is refined when it gets to Bayonne, so far as the Standard Oil is concerned?

A. Yes, and those that have pipe lines east, and I understand that crude oil is transferred to the refineries and refined there.

Q. You were asked regarding Williamsport and you added the freight from Williamsport to New York City in order to find what oil would cost here. As a matter of fact Williamsport is about the edge of what is known as the independent field there, is it not, the oil field?

A. I so took it to be.

Q. And if we obtain oil from independents, do you know of any way we could get it without paying in addition to their charge there the freight from Williamsport to New York?

A. I so assumed it, I assume that that was a competitive point and a competitive price.

Q. You found in Garfield's report that the oil fields were competitive points, didn't you?

A. Yes, sir, in general.

Q. So, too, if we were receiving oil from the far West by rail, we would have at least to pay the freight from here to Williamsport?

A. Yes, sir, it would be so much in excess of that from Ohio.

Q. Mr. Chamberlain was brought on to testify as to the cost of oil in Findlay, and you have given that cost plus the freight to Jersey City?

A. Yes, sir.

Q. Do you find in Mr. Garfield's report that Findlay is a competitive point also?

A. I do.

Q. Especially so mentioned, is it not?

A. Yes, sir.

Q. Now, Pennsylvania oil was stated by one of the witnesses to cover Pennsylvania, some part of New York, a few counties
6134 in southeastern Ohio, and some in West Virginia. Is Findlay in the Pennsylvania oil region or in a different region?

A. No, sir, Findlay is in the northern part of Ohio, west of the central line of Ohio, quite well up towards the State line.

Q. That is known as Lima oil?

A. I so understand it. I was there a number of years ago.

Q. You remember that Mr. Carter testified in reference to coal that the coal companies insisted upon presenting their bids and that they would have broken the door down if we tried to keep them out. Has anything come to your knowledge from any source which would lead you to suppose you could get oil from any source in the quantity and at the time you required, and of the same character, at less than you are now paying?

A. No, sir.

Mr. BURR: He may not have all the knowledge upon the subject.

Q. Do you know of any independent refineries this side of Pennsylvania that refine any oil that amounts to anything in quantity?

A. I understand from Mr. Garfield's report there are two very small refineries in the vicinity of New York.

Q. But so far as your information goes, their product does not amount to enough to be of much value to the Consolidated Gas Company, does it?

A. No, sir, the exact amount was not stated, but the way it is spoken of, it is insignificant.

Q. When you spoke of the candle-power tests, you were asked whether those tests were corrected for temperature as you gave them at the works and for the city test; were they?

A. Yes, sir, I investigated that carefully and I find they had been corrected for temperature and pressure and that they were taken from the outlet of the holder from the make of the works
6135 unmixed with other gas, except at 14th Street, where gas of other works is used to enrich the coal gas. May I interpolate a statement right here?

Q. Yes.

A. About that same time Mr. Kirby asked me in regard to whether I was sure that certain figures were corrected gas or whether they were the oil gas. I would like to spread on the record the actual figures for Mr. Kirby's information.

Mr. KIRBY: I would like to have them.

The WITNESS: February, 1905, gas registered, 393,518,000; corrected, 384,604,000; oil gas, 15,400,000. Total, 400,004,000. You will see that Mr. Edgerton used the 400,004,000, which is the total gas, including oil gas, and the figure I gave was corrected by gas. The correction was actually 11,000,000, whereas the oil gas was 15,000,000.

Q. Now, reference was made to Pintsch gas under heavy pressure as being used under conditions of cold with the suggestion that that did not lose candle power. Is that comparable with ordinary gas produced and delivered under ordinary pressures?

A. Not in my judgment.

Q. As a matter of fact, it is subjected to a pressure of 150 or 200 pounds, is it not?

A. Yes, sir.

Q. And what effect has that?

A. A large quantity of the hydrocarbons is deposited on account of the compression of the gas, which of course affects the conditions of the gas. If that gas then were subjected to a change of temperature I think it would be very materially different from the conditions which exist in ordinary illuminating gas.

Q. You stated that in some instances gasolene was added, or naphtha to a low gravity oil to bring it up. In what cases would that be profitably or naturally done?

A. Mr. Mathewson, I do not think I stated that I knew it
6136 was done. I said it might possibly be done that way, but Mr. Kirby suggested that the high cost of gasolene might make it unprofitable. It might possibly be used for lower gravities, at least it would materially affect the question upon what gravity they were endeavoring to make as to the cost of doing it, and whether it was profitable to do it.

Q. And would you consider an oil of very heavy gravity, say, 25, raised to a certain point by the addition of naphtha of a very high gravity, as producing a desirable oil from your standpoint?

A. I should prefer not to have it raised from any gravity in that way. I should prefer to have one which is more even.

Q. That would be what you would call unhomogeneous if you were to use that expression contrasted to homogeneous oil?

A. That was the way we used it.

Q. There is always some tar in manufacturing water gas, is there not?

A. Yes, sir, always tar produced.

Q. Did you figure how much territory you would desire for your storage tanks in New Jersey if you established a storage capacity for ninety days there, if you cut loose from the Standard Oil contract?

A. We would require in excess of thirty acres, I should say.

Q. In reference to the price of residuals in London, so far as coal

tar is concerned, do you know what the price is? You were asked about it and how it compared with New York.

A. I do not recollect the figures that were given there. I think it was rather lower than our price when divided by the number of gallons.

Q. But, as a matter of fact, the coal which is used in London, for instance, is of a very different quality, so far as your information goes, from that used in New York, is it not?

6137 A. I am informed so, but I do not know of my own personal knowledge.

Q. And without further information you would not yourself be able to make any comparison, would you, that would be of value?

A. Not in comparing the yield of residuals on the given coal and return.

Q. Now, Mr. Addicks, you took various exhibits, including State's Exhibit HHH and MMM and NNN and OOO, which were prepared by Mr. Edgerton, and made certain deductions from those exhibits, stating what they showed as analyzed and you prepared one for December, 1905, of the 21st Street plant, made up on the same basis. Was your purpose in that connection anything more than to show what the results were from Mr. Edgerton's own method of tabulation himself?

A. That was my purpose, sir.

Q. As a matter of fact would it not be your judgment that a much more intelligible result as to candle power and drops between works and tests could be obtained by taking all the gas of the company for all stations for the year combined and averaging them with the city's tests for the year?

A. Any suggestion of the City Inspector not getting the exact gas that was made at that station—it would eliminate that, if you took the average as Mr. Marks did yesterday.

Q. Precisely.

A. I want to say, however, that the number of tests in each case has a little bearing. That is to say that the tests at the station are in some cases made every hour for the whole twenty-four hours candle power, whereas the city tests are only—I don't remember how many a day, perhaps ten a day.

Q. But your point is that even then it would not be an exact comparison but you would get a general average that would be more nearly the fact than by taking the entire year for all stations and all tests.

6138 A. It seems to me if there is any mixing of the gas that should be done.

Q. Now, for instance the 42nd Street works take the test of their gas as it leaves the station, that is to say works test?

A. Yes.

Q. Now, before that gas reaches the city test station it is sent to another point, is it not, and mixed with other gas in a holder?

A. I don't remember the testimony about that, Mr. Mathewson; I don't recall exactly how it is. If there was, that would have to be considered.

Q. These testing stations, as you understand it, were picked when the companies were separate companies, were they not, representing the mains?

A. I so understand it, one uptown and one downtown, and the two stations are supposed to cover every company in the city, but as to what date they were fixed, I could not state.

Q. In answer to Mr. Burr you referred to the fact that you negotiated the oil contract. Did you ultimately get a lower figure, that is to say, does the contract comprise a lower figure than at first demanded by the Standard Oil Company?

A. I have so testified to it, one-quarter of a cent a gallon.

Q. You stated you tried once buying oil on the outside, in answer to Mr. Burr's question as to whether that was so. Was your experience a pleasant one, and what was the experience?

A. It was not a pleasant one. In Boston we hired a man as an oil buyer, with the understanding that he was to supply us with our necessary oil for our stations, which at that time was naphtha, but after we had burned our bridges we found we could not buy enough naphtha to reach our gas works at any reasonable price, and as a result we had to build new works to handle the heavier grade oil which we had not anticipated using when we started in on the proposition.

6139 Q. In other words, he could not deliver the goods and it was an expensive experiment, was it not?

A. That was the experience that we had at that time.

Q. You were asked whether if fourteen or fifteen companies got oil at 3.65 a gallon, as cited by Mr. Marks, you did not think you ought to get it for less than the present price, and you cited certain circumstances that would govern, but you said nothing about quality. Would not the question of the quality of the oil be a very important circumstance?

A. Yes.

Q. I think you referred to the personal equation, or Mr. Burr referred to the personal equation in reference, if I understood him, to information that you obtained from these other companies. As a matter of fact, the information you obtained was figures, practically all, was it not?

A. Yes, I did not understand Mr. Burr to mean the personal equation in getting the figures, but merely in the management of the work.

The MASTER: The economical administration of the work.

Mr. BURR: Yes.

Mr. MATHEWSON: I have nothing more to say on that, then. I misunderstoood him.

Q. You also said in certain streets of the city you thought one line of mains would do. Do I understand that if two lines of mains, say six-inch mains, did exist in the street, it is considered at all economical to discard them and to put down one line of main, even in such streets?

A. No, sir.

Q. I want to refer to the city of Boston for a moment. If the figures which have been shown you are correct, the candle-power for water gas in Boston is stated to be 22.9. As a matter of fact,
6140 no gas of that candle-power is sent out to consumers, is it?

A. No, not in the city proper.

Q. That is mixed with low candle power coal gas to produce an average of 19 candles, as I understand it, or 19.3.

A. So far as I can read that gas commissioner's report, that water gas that is shown is made in three stations, and in one of the three stations coal gas is made and mixed with it, and in another one of the three stations coke oven gas is mixed with it and the testing station is in the center of the city, possibly five miles from each of the three stations, four or five miles. In addition to that coal gas is brought in through a fourth station about a mile and a quarter or a mile and a half from this testing station.

Q. Now, so far as the candle power at the works is concerned for the coal gas and water gas, is not the coal gas tested by an Argand burner, or was it not your experience?

A. Any coal gas enriched with oil or unenriched would be tested by an Argand burner.

Q. What would be the effect of that, to show a higher candle-power or lower candle-power than if tested by the Bray burner, such as is used in New York City?

A. To show a higher candle-power.

Q. So, too, as to water gas, which is stated to be 22.9 candles. With that sort of a burner is that test made, so far as your experience goes?

A. That test is made, as I stated to-day to Mr. Burr, I think, with a Sugg-table top burner which is a burner which has around the lower part of it, just below the slit, a platform which prevents the air coming in quickly to the flame.

Q. And what is the effect of that, to show a higher candle-power or lower candle-power than the Bray burner which is used here?

A. It tends to increase the candle-power.

Q. By how much?

6141 A. By some authorities it is as high as 8 per cent. I can say from my personal knowledge somewhere not less than between half and one candle; 8 per cent. would be 1.6 candles, so it would be somewhere in the limits of probably three-quarters and 1.6 candles.

Q. So on that basis you would suppose that water gas when tested by the New York standard would show substantially lower than 22.9, would it not?

A. That particular gas?

Q. Yes.

A. Yes, but in addition to that the water gas mixed with the coal gas must be the candle-power of the mixed gas as made before it goes into the holder. At the Bay State it would be uncertain as to whether it was as it left the holder or went into the holder.

Q. Now, the Boston result of 4.38 candles per gallon, if those be the correct figures, are also very much below the New York results, are they not?

A. Yes, sir, it is considerably.

Q. Now, regarding your testimony in Boston at the investigation there, regarding which Mr. Burr has questioned you, is it not a fact that you appeared and assumed certain figures of cost which were given you and thereupon made your estimate and tabulations of result, if a dividend of 10 per cent. were allowed and also if a dividend of 8 per cent. were allowed and if 10.5 cents were allowed for a depreciation fund?

A. Yes.

Q. And were not the figures which you gave at that time the exact result of such a computation?

A. They were. I also eliminated certain charges.

Q. Very good, will you state a little more at length, taking the $1.10 which would be the result with 8 per cent., if these other additions which you think proper were made, and see how it figures out at present?

A. I eliminated all returns from electricity and eliminated all the profits on the sales of gas to outside auxiliary companies.

6142 Q. That was the basis upon which the testimony was given, was it not?

A. I gave testimony of that. I had the figures and stated what they were.

Q. It was fully explained in detail so it was perfectly understood what you were testifying at the time?

A. Perfectly.

Q. Now, if you deduct the 10½ cents from $1.10 it would leave 99½ cents, would it not?

A. Yes, sir.

Q. And you did not include, you say, the profit on gas sold to other companies, or the profit on the electric business, which would amount to how many cents per thousand on an output of that time?

A. On the output of that time, based upon what I have already stated, about $170,000, I think it was, and the sales at that time were about three thousand millions, I have not the report before me, which makes nearly 5.7 cents per thousand feet on the sales at that time.

Q. And if you take 5.7 from 99 cents it would leave about 94 cents?

A. It would leave 93.8 cents, and according to my figure here the average price of gas paid by private consumers in the year referred to, ending June 30, 1906, was 92.15 cents. There is a difference of 1.65 cents in the two computations.

Q. Which might have been made up, assuming the figures were to exactly balance, by a difference in operating expense or something of that sort?

A. As the effect of consolidation and as modified by increase of sales to private consumers.

Q. As a matter of fact, was 8 per cent. paid or has it been paid on an 85 cent basis, or even on a 90 cent basis of sales?

A. It has not.

Q. What was the average?

A. The sales to private consumers—when I say paid, I mean to private consumers, the average price of gas paid by private consumers—the memorandum I have here, obtained from Mr. Richards, was 92.15 cents per thousand.

6143 Q. In this 92.15 per thousand you testified that the Boston Company did not include the depreciation allowance of 10½ cents?

A. No, sir, they did not.

Q. Nor the profits from the electric business nor gas sold to other companies?

A. You mean in my computations?

Q. Yes.

A. No, sir.

Q. Now, even at the price at which they did sell, from the accountant's report as published in the press and to which reference has been made, they did not earn even the 8 per cent. dividend, did they, if you deduct a profit on the sales of gas to other companies and the electric, and if you deduct depreciation at the rate of 5 cents a thousand, which Mr. Richards testified should be done?

A. They did not earn it if you deduct either of those, and certainly not if both be deducted.

Q. And if you deducted them both there would be a substantial shortage?

A. Yes, sir.

Mr. BURR: Are the amounts stated in that newspaper clipping?

Mr. MATHEWSON: Yes, they are. It is not a newspaper clipping except that it is a publication required by the statute of Massachusetts.

Q. The assets of the Boston Company, according to the report to which your attention has been called, amount to something like $24,000,000, do they not?

A. Yes, sir.

Q. As against a capital stock of a little over $15,000,000 and some notes outstanding of not a large amount in addition, is that right?

A. Yes.

Q. There are several million dollars surplus, at any rate, over capital and capital obligations in assets?

A. Yes.

6144 Q. So the entire investment in electric business could be treated as surplus beyond all the capital outstanding of the company, in whatever form?

A. If they so desired to figure it.

Q. Now, in view of the fact that Mr. Burr has gone into this subject at such a length and spoken of the earnings and dividends——

Mr. BURR: Of what company?

Mr. MATHEWSON: Of the Boston Company.

Q. (Continuing:) I will ask you what your information is as to the earnings on the reduction to 85 cents per thousand?

Mr. BURR: I object to that. We were simply meeting the statements he had made.

Mr. MATHEWSON: No, you were not. You went into it head over heels this morning.

Mr. BURR: And which you brought out through his examination in rebuttal.

Mr. MATHEWSON: I think you have opened it so that I at least can ask this question.

The MASTER: I will allow it, Mr. Burr.

Mr. BURR: Exception.

A. Mr. Richards' statement to the Tax Commissioners in Boston was that the net earnings since reduction in price was last made indicates that the company for the year ending June 30th will not be able to pay over 6 per cent., if it does that, for the fiscal year ending June 30, 1907.

Q. And if you eliminate the earnings from electrical business, assuming that they are 4.6 cents per thousand, the earnings would not be over five per cent., would they?

A. You would have to reduce that by the 1.1.

Q. That would be less than five per cent.?

A. I think the calculation this morning would be 4.9, and under it. Mr. Mathewson, you understand that is the entire amount
6145 of the sales to other companies, as well as the electricity?

Q. Yes; in other words, the entire profits of the company from whatever source, so far as you know?

A. Well, I eliminate the sales to other companies and the electricity—in that $170,000 which you mentioned.

Q. Yes, I understand——

A. In other words, based right on the gas business in Boston and not on some outside business.

Q. Now, Mr. Burr asked if gas in summer would not pick up enrichment, or might not puick up enrichment as it went along through the mains. If it could do that, wouldn't it necessarily follow that the enrichment must have been dropped in the winter or some other time in order that it might be picked up later?

A. Yes, sir.

Q. One is a corollary of the other?

A. If one could be done——if it was to be picked up.

Q. As a matter of fact the ten and one-half cents which you deducted in Boston was for depreciation and reserve fund, final renewals, pure and simple, without including any renewals there had been, wasn't it?

A. That was in addition to the expenditures for repairs during the current year, yes, sir.

Q. You were asked whether if when we had the Astoria plant running we would require more oil, and I did not understand your reply to be exactly definite. If we use Astoria to produce the three billion feet which we are now procuring from other companies and continue to run our own manufactories on Manhattan Island, it would certainly mean more oil required.

A. For the Consolida-ed Gas Company, yes, sir.

Q. Your answer I assume referred to the proposition of our completing a second unit which would be substituted for something on Manhattan Island later?

A. I was assuming that the whole situation was the whole
6146 hundred million gallons, all the companies, when I answered that question, and if some coal gas would be made instead of some water gas.

Q. As far as the Consolidated is concerned, you cannot see any reason, can you, for supposing we would require less oil in the near future?

A. Not so long as the candle power exists as now.

Q. Now, as a matter of fact, isn't the English law which Mr. Burr has presented and which shows no penalty for half a candle power and some penalty for twenty-five pounds to one hundred pounds, or a later drop, a law that has been superseded by a subsequent act?

A. I am so informed.

Q. And the London Gas Act of 1905, which I show you, provides, does it not, that the penalty shall attach only in case there is deficiency in candle power existing of one candle instead of half a candle?

A. (No answer.)

Q. And that then the average of all testings——

Mr. BURR: He has not answered that question. I would like to know about it.

Mr. MATHEWSON: You shall know. Here is the act. Paragraph 3 on page A2, I think it is, states:

"If on any one day the gas supplied by the company at any testing place is of less illuminating power to an extent not exceeding one candle than it ought to be the average of all the testings made at such testing place on that day and on the preceding day and on the following day shall be deemed to represent the illuminating power of the gas on such one day at such testing place."

Q. Yes, that was all. Then they take the average of all the testings of that day combined and the average of all the testings
6147 for the day before and the day after to arrive at the candle power in determining the question of the imposition of the penalty; that is it in substance?

A. That seems to be the force of it. And it also I see here states that:

"The gas supplied by the South Metropolitan Gas Company and the Commercial Gas Company shall be 14 sperm candles of six to the pound."

My opinion is that a difference of one candle in a 14 candle power gas is a very different proposition from the difference of one candle in a 22 candle power gas.

Q. And you find also that the company has a right of appeal, don't you, by that act, in case they do not think that the imposition of the penalty is proper?

The MASTER: They had that under the old act, didn't they, to the chief inspector?

Mr. BURR: Yes.

Mr. MATHEWSON: The rights of appeal are very much broader in this act, Mr. Master.

The WITNESS (reading): "If the company think themselves aggrieved by any prescription or certificate of the gas referees they may, in the case of an appeal, in respect of a burner or a chimney prescribed by the gas referees under the provisions of this act, within three months, or in any other case, within one month from the making of such prescription or certificate, appeal against such prescription or certificate to the chief gas examiner."

In our law there is no provision even that the best burner should be used.

Mr. MATHEWSON: This act, I will say, is known as the
6148 London Gas Act, 1905 (5 Edw. VII., Chapter 155).

Recross-examination by Mr. BURR:

Q. With regard to the figures that were supplied to you at the Boston examination, were these the same figures that are contained in this clipping from the *Boston Globe* of September 28, 1906, to which reference has been made?

A. No, sir, but the figures supplied to me were very similar; I have checked them.

Q. This purports to be the audit covering the company's books, June 15, 1905, to the close of the fiscal year, June 30, 1906?

A. Yes, I told you it was more than one year.

Q. You stated that the figures for the Boston company, by Mr. Chase, as auditor, did not agree with those in the State return. You are now aware, are you not, that Mr. Chase's audit was from June 15, 1905, the date of consolidation, to June 30, 1906, while the State return was for the year commencing twelve months from June 30, 1905?

A. Did I state they were not alike?

Q. I think so.

A. Didn't I state they were alike? My impression is I have checked some of these figures and they are undoubtedly the gas commission's report. There are some figures that are identical, therefore, I assume the gas commission must have covered more than one year.

Q. Referring to the statement you just made, with regard to the possible increase or non-increase of oil supply, by reason of the Astoria works, if the make of the Astoria works in coal gas for 1907 and 1908 is 15,000,000,000 cubic feet and each cubic foot of gas required two gallons of oil to enrich to 25 candles at the works, will not the total of your requirement for oil be 30,000,000 in-
6149 stead of 107,000,000 gallons of oil?

A. Astoria to make 15,000,000,000 feet.

Mr. MATHEWSON: The total capacity of the first unit is only 4,000,000,000.

Mr. BURR: We are speaking now of the future.

Mr. MATHEWSON: You say this year?

Mr. BURR: I say 1907 and 1908.

The WITNESS: That is nearly four times the capacity of the first unit.

Q. Well, that will be true when you get a capacity of 15,000,000,000 cubic feet, which is the capacity which you calculate to finally arrive at?

A. Why, I have not made any statement of that kind, except in so far that the first unit will be four thousand millions and each unit that we had would be that much, if the ultimate capacity of the Astoria plant in coal gas is 120,000,000 a day, and if we had four units, I might have said it was sixteen thousand millions with four units, but I don't see any connection with 1907.

Mr. MATHEWSON: The testimony expressly was that it was not determined whether the subsequent units would be water gas or coal gas. We couldn't tell that.

Q. Assuming the make of the Astoria works of coal gas will finally arrive at fifteen billion feet, then you will not need 107,000,000 gallons, but only 30,000,000, assuming two gallons per thousand cubic feet of gas enriched to the 25 candle-power point?

A. Multiplying the fifteen billion feet by two gallons is thirty million gallons of oil, but that has no reference to our requirements.

Q. The figures upon which you based your statement in the Boston gas investigation were supplied to you by the company, were they not?

A. Yes, sir.

6150 Recross-examination by Mr. KIRBY:

Q. It does not require as much oil to enrich coal gas to 22 candle-power as it does to enrich carburreted water gas, does it?

A. No, sir.

Q. As a matter of fact if you add a gallon of gas oil to a thousand cubic feet of carburetted water gas there is no enrichment, is there?

A. I can't answer that question. I should think there would be some but I don't recall doing that.

Q. If you added two gallons would there be any appreciable result in candle power?

A. I don't recall the figures given by others, and I do not remember myself having added either as low as one or two gallons to water gas to determine the candle power.

Q. Now, if you add a gallon after two have already been added, you will have the candle power raised more than the gallon—more than that occasioned by adding the second gallon, will you not?

A. I think very probably as you state it for that number of gallons, yes.

Q. That would be true up to how many gallons per thousand cubic feet of carburetted water gas?

A. I think with the present oil you would get the higher candle power up to between twenty and twenty-five. I think it will probably proceed in the opposite direction and require more proportionately for the net result in higher candle powers.

Q. And that would commence before you reached twenty-five candles?

A. I think it would come more in the vicinity of twenty-two to twenty-five probably, but I wouldn't want to be specifically tied down to that as a specific statement of facts.

Q. You are not sure of that point where the maximum result from one gallon of oil to a thousand cubic feet of gas is thirty-five candles, and not twenty-five?

A. You mean with the present oil?

Q. Yes, such oil as the Consolidated is now using?

6151 A. My judgment and experience would be to say it was below twenty-five rather than anywhere near thirty-five, with our present oil.

Q. Would a lower gravity oil make the point nearer 35?

A. I think it would be more difficult with gravity oil to make the higher candle out of it than if you had the higher. You are speaking now of 30 and 35? I mean netting that.

Q. Are we to infer by that that the maximum of a low gravity oil would be at a higher candle power than the maximum from a high gravity oil?

A. No, I think the reverse of that. That is how I am trying to place it.

Q. Well, that is what I thought. Do you know whether the coke furnished by the New England Coal & Coke Company has any higher percentage of carbon than that furnished by the Consolidated Gas Company works on the Island of Manhattan?

A. Pound for pound?

Q. Pound for pound?

A. I would not like to say whether it had or not.

Q. Do you know whether it differs at all in ash, pound for pound?

A. I would not commit myself on that either.

Q. Do you mean to say that if there were no works upon the 14th Street real estate of the Consolidated Gas Company and you were called upon to place a coal gas plant upon that you would place there the kind and size of benches or retorts that are now there rather than those which have been placed at Astoria?

A. I do not.

Q. Your information in reference to the oil used at the gas works at Williamsport was that such oil was purchased from the Standard Oil Company, was it not?

A. That was in the evidence originally.

Q. And such information as you received did nothing to contradict that, did it?

A. No, sir, it did not.

6152 Q. Do you know what candle power the Pintsch gas which you referred to has?

A. Before or after using?

Q. As it is used in the cars?

A. No, sir. I meant to say before or after compression.

Q. I mean after the compression, ready for use?

A. No, sir. I don't know definitely.

Q. Do you know what candle power it has before compression?

A. Well, from general knowledge of what oil gas is usually.

Q. What would that be?

A. It depends somewhat on how many feet of gas you make with the oil. If you make more feet of gas you are apt to have a low candle power when made in the retort process. If you make less gas you would have a higher candle power.

Q. Do you know how much candle-power is lost by compression?

A. No, Mr. Kirby, I won't say I have never known; I probably have known in reading, but I haven't it in mind and could not testify and give you the information about it.

Q. You have spoken about the coal gas being tested by the Argand burner. When is it tested by an Argand burner, do you know?

A. Well, the supply of air to the gas produces the highest incandescence in the hydro-carbons in that particular kind of gas, in that particular shaped burner, with a particular number of holes.

Q. So there would be more candle-power shown by a test with this burner than if tested with a Bray burner?

A. With the ordinary flat frame burner, or even the Bray burner, yes, sir, in my judgment.

Q. Is that also true of the Sugg table top burner that you have made reference to?

A. Yes, sir. I think the Argand burner gives a better result than the Sugg table top for the lower candle-power coal gases.

Q. Would the Sugg table top show more candles than the Bray burner on gas below 16 candle-power?

6153 A. I don't recall that, but I should think it would; but I don't think in the same proportion, if at all.

Q. Would it show it on gases below 20 candle-power?

A. Yes, I think it would be apt to.

Q. Would it on gases below 22 candle-power?

A. I think on the higher candle powers it would show probably the results that I have set up. As you go down to lower ones I don't think the results would be in the same proportions.

Q. Do I understand you, then, that the Sugg table top burner would give a higher candle-power than the Bray burner, such as is used in the city's tests here in New York, on the same gas, such gas being 22 candle-power or above?

A. That is my opinion, yes.

Q. The Sugg table top burner is in use in the city tests, isn't it?

A. I don't know of it being used, no, sir. It is used in Boston, I stated. It was used by me at the Boston works.

Q. Is the Sugg table top burner the burner used by the Consolidated Gas Company?

A. No, sir. We use the same burner as the city, which, as I recall it, is the Bray No. 7, I think I stated the day before yesterday it was Bray No. 6. I would like to correct that now. I think it is No. 7.

Q. There is no requirement you know of in the statute applying the test of candle-power which specifies that the Sugg table top burner should not be used, is there?

A. I won't be sure about the present law, but the former law said tests should be, as I recall by a burner that was in general use, from

my memory of the wording of it. As a Sugg table top I do not think is in use in New York, it would be excluded, I should think.

Q. Have you ever made any tests on the Sugg table top as compared with the Bray burner?

A. Yes, I did; a great many years ago.

6154 Q. On what candle-power gas?

A. 25 candle-power.

Q. Do you remember the results of your tests?

A. No, except it was adopted in preference to that burner as giving the better results. Under the Massachusetts law it was that the burner should be used that gave the best results; it was used for that reason.

Q. Was that enriched coal gas or enriched carburetted water gas?

A. That was carburetted water gas.

Q. Are you not aware that the Sugg table top burner was made for the purpose of testing the low candle-power gas used in the City of London?

A. I didn't know that it was intended for that purpose. I only know its result as used on high candle-power in Boston.

Redirect examination by Mr. MATHEWSON:

Q. Dense coke is not so bulky as porous coke, I suppose?

A. It is not, sir, ton for ton.

Q. Therefore, where you have restricted room, for instance, as in the tender of a locomotive, the dense coke is better adapted for use there?

A. It is; and, in general, it will stand the blast of the locomotive and would stay in the fire where the draught through the tubes of the locomotive might draw the lighter coke up through the tubes and make more of the cinders in the front end which you are familiar with.

Q. Referring to other Massachusetts companies outside of Boston, it would make a distinct difference whether in that test they used table top burners or Argand burners in making their tests as reported, would it not?

A. It would depend upon the gas they made; yes, sir.

6155 ALFRED E. FORSTALL, a witness called on behalf of complainant, in rebuttal, being first duly sworn, testifies as follows:

Direct examination by Mr. MATHEWSON:

Q. Where do you reside?

A. Montclair, New Jersey. My business office is in New York City.

Q. What is your business?

A. Consulting gas engineer.

Q. How long have you been such?

A. Since 1899.

Q. Have you had any practical experience in the gas business?

A. Quite a good deal. Shall I give you an account of it?

Q. Yes.

A. After graduating with a degree of Mechanical Engineer from Lehigh University, Class of 1883, and taking a post graduate course of a year in chemistry, I went to work with the Chicago Gas Light and Coke Company, which was one of the companies now merged into the People's Gas Light and Coke Company of Chicago, as superintendent of construction. I was then made assistant manager of the North station works of that company, in charge of the operation of the water gas plant. Upon the death of the manager I was made manager of the station for a year. Later, upon the death of the engineer, I was made assistant engineer in charge of both stations. I left that company in 1890, came to Newark, where I was general superintendent of the Newark Gas Light Company until 1897, when I went to Montclair and was general manager of the Montclair Gas and Water Company, which made no gas but bought it and distributed it, for two years, and then I became a consulting engineer.

Q. Have you had experience and practice in photometry and investigations of candle power and pressure?

6156 A. I have made a very thorough study of photometry as part of my work as manager of a gas works.

Q. Did you take State's Exhibits X, Y, Z and AA, being four burners, which were presented here by Professor Hallock, and make tests of the rate of consumption, candle power of flame and efficiency under the pressures as to each which Professor Hallock employed?

A. I did.

Q. And do these sheets which I present show the results of your tests as to those four burners respectively?

A. They do.

Q. And in the final column and under "Remarks" I find such entries as "Flame of good shape and stiffness" or "Horns at base of flame almost horizontal." Those remarks indicate the character of the flame, I assume?

A. Based upon my observation at the time of making the tests, yes, sir.

Q. Do these sheets contain tests at any pressure in any case other than those employed by Professor Hallock?

A. They do in the case of the last sheet.

Q. That is referring to State's Exhibit AA?

A. Yes; but not otherwise.

Mr. MATHEWSON: I will offer these in evidence. They are in the same form as Professor Hallock's, and made so for the purpose of comparison.

Received in evidence, and marked Complainant's Exhibits 336, 337, 338 and 339.

Q. As a rule, Mr. Forstall, these tests as to rate of consumption, candle-power, and efficiency candle-power per foot, agree very closely with Professor Hallock's, do they not?

A. In general they do. There is a little difference in connection with State's Exhibit X and State's Exhibit Z, in that my tests do not show the efficiency to fall off as fast, in the case of State's

6157 Exhibit X, with the change in pressure from .4 to .6 of an inch, as Professor Hallock's did, and State's Exhibit Z from

.14 to .21 of an inch, my efficiency does not fall off as fast as the efficiency determined by Professor Hallock did.

Q. Professor Hallock stated in the case of the Welsbach that the efficiency dropped off when the pressure fell below 1½ inch, and you made no tests in that regard?

A. No, sir.

Q. State's Exhibit AA is the same as State's Exhibit Z, except that the former is checked?

A. Exhibit AA is checked.

Q. And did you make tests with a high pressure Bray Slit Union No. 6 burner, which was similar to State's Exhibit X, except that the high pressure Bray was checked?

A. I did.

Q. So, too, did you make experiments with a high pressure Bray Slit Union No. 4, which was similar to State's Exhibit Y, except that this high pressure Bray also was checked?

A. I did.

Q. And the results of those tests, as compared with State's Exhibit Z and State's Exhibit AA and State's Exhibit X are shown in tabulated form on this sheet?

A. They are.

Mr. MATHEWSON: I offer this sheet in evidence.

Received in evidence and marked Compainant's Exhibit 340.

Q. Referring to these five sheets, Complainant's Exhibits 336 to 340, both inclusive, I wish to call your attention to some other features. Is it not the fact that when the efficiency begins to drop there is a noticeable difference in the appearance of the flame which calls the attention of the consumer to the necessity of adjustment?

A. It is.

Q. And how is that change evidenced?

A. If you will look in the "Remarks" on Complainant's Exhibit 336, the first page——

6158 Q. That is the commercial 6-foot bat-wing lava tip burner?

A. Yes, you will see opposite the data for .6 pressure the statement that the flame shows horns at base of flame and streaks in the blue portion, and is just on the point of becoming serrated on the upper edge. When you come to the .7 pressure you find horns becoming quite prominent, blue portions streaked and the upper edge serrated. It is just at that point that the efficiency drops, when those horns appear it shows the efficiency is beginning to drop.

Q. A very slight drop then in efficiency beyond the point where the flame is of good shape and stiffness is at once shown in the character of the flame.

A. The shape of the flame and its character.

Q. I call your attention to Professor Hallock's action in removing the checks from the burner in order to obtain more light, even though it involved loss of efficiency according to his tables, and ask you whether that is wise or necessary in the use of gas according to your tests and experience?

A. Very unwise and entirely unnecessary. If he wanted more

light he could have obtained it with the same efficiency by getting a larger sized check burner which would have given him the same efficiency, and he could have gotten a size to suit any amount of light he wanted.

Q. Take Complainant's Exhibit 340, the fifth sheet of these, where we have a comparison of the checked and unchecked burners. I observe that State's Exhibit Z, the unchecked burner, with a pressure of .14 inches—which is its highest efficiency, is it not?

A. According to Professor Hallock, and which agrees approximately with my test, yes.

Q. (Continuing.) Gives an efficiency candle power per foot of 4.43 candles; is that right?

A. Yes, sir.

Q. That same burner, except that it is checked, to wit, State's Exhibit AA, with a pressure of one inch, gives an efficiency of

6159 how much?

A. 4.46 candle per foot.

Q. So that the high pressure of gas instead of being uneconomical would seem to be economical in that case, wouldn't it?

A. If the burner was properly designed to it, yes.

Q. So too, take State's Exhibit X, under the pressure of .4 of an inch, it gives an efficiency of 4.14, and what does it give if checked under a pressure of 1.29 inches?

A. 4.52 candles.

Q. There is another substantial advance in efficiency?

A. Yes.

Q. So, too, State's Exhibit Y, unchecked, under pressure of .4 inch assumed by Mr. Hallock, gives an efficiency of 4.17 candles, and if checked it gives what efficiency at a pressure of 1.33 inches?

A. The checked burner similar to it gave an efficiency of 4.28 candle.

Q. So that these high-pressure burners, or the checked burners you employed, gave them, with a pressure as high as 1.3 inches, or even higher, a greater efficiency than can be obtained by the low pressure burners even under the most economical pressure for the low-pressure burner?

A. They may be employed at considerably higher pressures than that. I stopped there because the particular photometer I was workign on would not give me any more pressure—the governor on the photometer would not give me any more pressure than that—but I could have run either of those two burners up to two inches without showing any drop in efficiency.

Q. That is your general experience from other tests and observation?

A. From other tests, yes, sir.

Q. If one desires to use a low pressure burner and one less

6160 efficient, therefore, than the checked burner, he may regulate the amount of gas and the character of his flame by turning down his burner when he sees it flare?

A. He certainly can do just what I do every night in my hall. I have a burner there which I have not changed, because I adjust the flame by the stop cock.

Q. If he does not care to do that he can have the higher pressure burners?

A. Yes, sir.

Q. Have you any photographs here which you want to show me?

A. Yes, sir. I have photographs of the flames given by these burners, illustrating some of the points which I testified to.

Q. Now, as to State's Exhibit X, is this a photograph taken with the flame at a pressure of .8 inch?

A. It is. The pressure is shown on the gauge at the side, a low-pressure burner, unchecked.

Q. Does that mean to show by the character of the flame that it should be turned lower?

A. Yes. The horns are very decided and the upper edges becoming rough and the flame is beginning to have sharp angles instead of a curve.

Mr. MATHEWSON: I offer this photograph in evidence.

Received in evidence and marked Complainant's Exhibit 341.

The WITNESS: That pressure is the point at which the efficiency showed a decided drop.

Q. Now, State's Exhibit Z is shown in the photograph I now hand you at its highest point of efficiency, as per Professor Hallock, at .14 of an inch, isn't it?

A. Yes, sir.

Q. And the character of that flame simply shows it is being burned at an economical rate, doesn't it?

A. Yes, sir. This photograph also shows that that flame
6161 is entirely too small to be of much service to anybody and that it is very flabby; the edges are curved back so the flame is like that instead of being flat (illustrating).

Q. And do you find that some of these results of Professor Hallock were obtained with a flame so flabby that while it might do in the laboratory it would be out of question for commercial use?

A. Yes, sir. I think you will find that noted in the remark on these.

Mr. MATHEWSON: I offer this photograph in evidence.

Received in evidence and marked Complainant's Exhibit 342.

Q. I also show you another photograph. This represents State's Exhibit Z, a low pressure burner, a pressure of .2 inch, does it not?

A. It does.

Q. And what does it show as to the size of the flame and the character of it?

A. By comparing it with the other parts in the photograph it can be seen that that flame is very small and also seen it is curled over on the edge and flabby and not such as would be commercially used.

Mr. MATHEWSON: I offer that photograph in evidence.

Received in evidence and marked Complainant's Exhibit 343.

Q. I show you a photograph showing upon the same paper two exhibits, one State's Exhibit AA?

A. Yes.

Q. A checked burner, is it not?

A. Yes, sir.

Q. And the other State's Exhibit Z, which is an unchecked burner; is that right?

A. Yes, sir.

Q. This is under pressure of 1.35 inches, is it not?

A. Yes, sir.

6162 Q. What comments have you to make as to the character of those flames and what they indicate?

A. The checked burner is giving a good flame; the unchecked burner, you can almost tell from the picture, is making a noise, and giving a flame that gives very little light. The flame is pointed and you can see the streaks in it, showing the blue streaks running all through the flame. It was making so much noise that nobody would use it in the room.

Mr. MATHEWSON: I offer that photograph in evidence.

Received in evidence and marked Complainant's Exhibit No. 344.

Q. The unchecked burner, State's Exhibit Z, is "blowing," isn't it, as it is called?

A. Making a noise, roaring; yes, sir. I will state that I took no candle power test of State's Exhibit Z when it was in that condition, because it was simply useless. You find on Complainant's Exhibit 338 that I took no candle power tests at pressures of .62 and .97 of an inch, although Professor Hallock had taken tests at those pressures. As soon as I saw the flame I made up my mind there was no use taking any candle power of that gas, because it was not a flame that would be used.

Q. Professor Hallock in speaking about the use of gas for fuel did not say that the practical efficiency of gas was the same, no matter at what pressure the gas was supplied to the burner; his statement being in this regard at page 3868, merely that he had made tests showing that the actual calorific value of the gas was the same at different pressures?

A. That is as I read the testimony and as I understand it.

Q. In his cross-examination, page 3890, he said the tests were made with the Junker Calorimeter. Does that show efficiency or merely the total calorific value?

A. Merely shows the total calorific value.

6163 Q. Then the general proposition, as I understand it, without going into details, which you consider to be established by these details, is that the higher efficiency and the greater economy to the consumer can be obtained by burning the gas under pressure of more than an inch, even in the ordinary burner, if it is checked?

A. I wouldn't say greater, but as great. If the ordinary burner is properly checked the efficiency will be about the same.

Q. And those checked burners are burners, are they not, which are in common use and can be obtained at any time in the city from the company and which it distributes, as you know?

A. The burners are on hand at the company's office, as I understand it; or, if the consumer does not care to go to the company they can be very easily obtained at several places in the city.

Q. For a small sum?

A. About 5 to 10 cents. I never bought them at retail. At wholesale I can get them considerably cheaper than 5 cents.

Q. On page 3093 of the testimony Professor Bemis made the statement that "If then the Consolidated Gas Company can stand a reduction to 85 cents on the basis of last year's business it could stand a reduction to 75 cents on the basis of the business that would surely come to it in the next two years after the reduction." And again, on pages 3408 and 3409, he gave an explanation of this statement, using concrete figures. Will you review that theory with your figures and state your conclusions as to the soundness of his deductions?

A. In order to test that I proceeded to check, by a method which I use continually when I am estimating the amount of gas that would be sold in a town, on the gas company of which I am reporting the reasonableness of sales, of the amount of gas that would be required to make these statements accurate, and in order to determine
6164 the amount of gas that would have to be sold at 80 cents, taking the second statement first, to produce under these assumptions a profit of $3,288,000, which is the profit assumed by Professor Bemis, I first divided that amount of money by the sales of gas in 1905, and determined that the profit per thousand cubic feet necessary under those conditions was 24.75 cents. Assuming the same cost of gas the profit at 80 cents would be only 14.75 cents per thousand cubic feet, or to have a total profit of $3,288,000 it would be necessary to sell 22,291,525 thousands of cubic feet.

Q. That would be 22 billion- and over?

A. Yes. Sales of that amount would mean an increase between 1905 and 1908, 1908 being the second year after the reduction, if it were made immediately, of 67.5 per cent. Now the per cent. increase of sales is very misleading sometimes, that is, when you attempt to go from the past to the future. Simply on a percentage basis you are very apt to get into trouble, so using the method that I employ to see what that would mean in this way, I took a consumption per active meter December 31st 1904, as taken from Complainant's Exhibit No. 86, which was 35,227 cubic feet and divided it into 22,291,525,000 cubic feet and so found that to sell that amount of gas the company would have to have, December 31st, 1908, 632,796 active meters, which would be an increase over the number in use or the number of active meters December 31st, 1905, of 242,466 meters. This number of 632,796 active meters would mean one meter for the Consolidated Company for every 3.59 inhabitants in Manhattan in the year 1908. Assuming that the other companies on the island——

By the MASTER:

Q. Your population being estimated on what?

6165 A. I estimated the population by taking the difference between the population as shown by the State Census of 1905 and the population as shown by the United States Census of 1900, and assumed that the increase for the years between 1905 and 1908 would be at the same absolute number per year as in that five years

between 1900 and 1905, and that brought out a population for 1908 of 2,270,257. Assuming that the other companies operating in Manhattan in 1908 had 200,000 active meters the total number of active meters in Manhattan would be 832,796, which would give one meter per 2.72 inhabitants. To see what this meant in regard to the number of families in the Island of Manhattan at that time, or rather to see how the increase in the meters compared with the increase in number of families, I divided the increase in population, which was roughly 156,000, three times 52,000 and some odd hundreds, by 4.72, which is the number of persons per family given for the Island of Manhattan in the United States Census of 1900, and found that there would be an increase of practically 33,400 families in the three years, or only 1-7 the increase in Consolidated meters that would be required to meet the increase of sales.

By Mr. MATHEWSON:

Q. So there would be an increase of meters of 289,955, against an increase in families of 33,400?

A. 242,466 was the increase in meters as against 33,400 in families, yes, sir.

Q. Now taking the other comparison?

A. I had no cost of gas given and so for the sake of getting something that had authority behind it outside of the company's statement, I took the cost of gas given by the Gas Commission, which is
62.56 cents per thousand cubic feet. With this cost the
6166 profit at a price of 85 cents would be 22.44 cents per thousand cubic feet, which on sales of 13,283,000,000 cubic feet, leaving out the odd thousands from the sales of 1905, would be $2,980,705. Making this total profit at a price of 75 cents or with a profit of 12.44 cents per thousand feet it would be necessary to sell 23,946,000,000 cubic feet in 1908. On the same basis of sales per active meter this would call for 679,672 meters to be set December 31st, 1908, which would give the Consolidated Company one active meter for each 3.34 inhabitants in Manhattan at that time, and making the same assumption as to the 200,000 active meters for the other companies the combined companies would show one meter for each 2.58 inhabitants, or nearly two for each family.

Q. In the whole Island of Manhattan, two meters for each family in the whole Island?

A. In the whole Island, yes, sir. And these figures would call for an increase of 289,955 meters as against an increase in families as previously noted of 33,400.

Q. Now, based on your experience and knowledge of the gas companies is such a thing humanly possible, in your judgment?

A. I think it is entirely impossible.

Q. You never heard of any such proportion anywhere did you?

A. Well, in something like fifty companies I have examined in the last few years I don't know of any case where there has been as much as one to six inhabitants.

Q. And New York City has already passed that and got under that lowest minimum, hasn't it?

A. Yes, sir.

Mr. KIRBY: If that is testimony rather than a brief I should certainly like a little opportunity to endeavor to digest it before I should attempt to cross-examine him.

Mr. MATHEWSON: You can take the sheet; it is right be-
6167 fore you, and it is not very difficult to understand it.

Q. How did you get the number of meters for the other companies, on what basis did you assume that?

A. I could not find any definite information which was already on file. It was not in evidence in the case, and not having access to the records of the other companies, I went at it in this way. On page 2283 of the testimony Mr. Marks gives the sales of the Consolidated Gas Company for the year 1905 as being 68 per cent. of the total sales in Manhattan. Assuming that the other companies had the same sales per meter as the Consolidated, which, if anything, is a little low; that is, the other companies would probably have a little higher sales per meter, then, dividing 390,330, which is the number of Consolidated active meters, by .68 would give a total of 574,014 active meters for all companies, or 165,684 for the other companies apart from the Consolidated. To correct for any over estimate there I took 10 per cent. off or 18,000 meters, making the total active meters for 1905 for the other companies of 165,000. Then if there was to be any such increase for the Consolidated meters as would be required by the conditions assumed by Professor Bemis, there would certainly be an increase of 35,000 in the meters of the other companies, so I considered 200,000 was, if anything, too low an estimate for what they would have under those conditions in 1908.

Q. These deductions are based entirely on the figures that have been presented you, as you have stated your computations from them?

A. Exactly. All the figures I have taken are taken entirely from the figures in the testimony. The deduction is, as I say, following out a line of checking that I always use in making up my own reports, as to possible increase in consumption.

6168 Cross-examination by Mr. KIRBY:

Q. In this statement which you have made I presume you assumed that the meters registered the same number of cubic feet of gas for the year 1908 as they would for the year 1905?

A. All the figures in this case are for 1905, as I understand it, and I estimated the meters would register whatever gas passed through them, but I have estimated that the sales per meter would be exactly the same in 1908 that they were in 1904.

Q. So that if, as a matter of fact, the sales per meter were larger the number of meters as calculated by you would be much more smaller?

A. Certainly.

Q. And smaller in exact ratio to the increase of sales per meter?

A. Yes, sir.

Q. So again your deductions as to the number of thousands of cubic feet of gas which would have to be sold to bring the profit

which you have assumed, depends entirely upon what the cost of making and distributing that gas would be?

A. Certainly.

Q. If the cost of making and distributing that gas would be 80 cents, why couldn't you sell enough gas to make that profit?

A. There wouldn't be any profit at all, no, sir.

Q. Why, you could very well show by a curve or a scale of some kind how the scales would have to increase, as the cost of making and distributing would vary from 80 to 70 to 60 to 50 to 40 or whatever it might be?

A. Certainly.

Q. Now, turning to these tests which you have made on various burners, I take it that in your exhibits 336, 337, 338, 339 and 340, where you state at the top thereof, "State's Exhibit X," you refer to the exhibit which was the actual metal burner with the lava tip or whatever kind of tip might happen to be inserted therein?

A. I do.

Q. And the words, "Commercial six-foot bat-wing lava
6169 tip burner," are those corresponding with State's Exhibit CC?

A. Yes, sir.

Q. And that you have assumed from the testimony for instance in Exhibit 336, that State's Exhibit X was in fact the commercial six-foot bat-wing lava-tipped burner with which Professor Hallock made his tests?

A. No, the tag with which the burner was marked, the tags on the exhibits (I haven't in the photograph of State's Exhibit X, but the tags are all the same. Excuse me, here is one with X.) You will see that the tags give both the exhibit number and the type of the burner; that is what I went by.

Q. Do you know how many check burners are in use in the Borough of Manhattan to-day, or the City of New York?

A. No, sir.

Q. Do you know how many unchecked burners are in use?

A. No, sir.

Q. Do you know what percentage of unchecked burners there are, compared to all the burners in use?

A. No, sir.

Q. Do you know what percentage the checked burners bear to all the burners in use?

A. No, sir.

Q. Do you know how one compares with the other so far as the number in use is concerned?

A. I do not.

Q. You have spoken of this burner which you have in your hall, and which you turn down because it is too much trouble to go out and get another one. Don't you think that a man with a check burner that gets clogged up would be put to some trouble to go out and get another one to replace his burner?

A. I never knew a check burner to get blocked up any more readily than an ordinary burner.

Q. Don't they all get clogged up?
A. That depends on the gas a good deal.
Q. In New York City?
A. I don't know.
6170 Q. Do they get clogged up in part? Do they need cleaning or taking care of?
A. Any burner needs taking care of, yes.
Q. How do you take care of them?
A. I usually carry a burner cleaner around with me, but I haven't one now.
Q. You think the ordinary householder carries a burner cleaner around with him?
A. No, but the gas companies distribute burner cleaners very frequently.
Q. Do you know of anybody who can produce one on demand?
Mr. MATHEWSON: How does that affect a checked rather than an unchecked burner? It seems to me that is rather immaterial.
Mr. KIRBY: I don't think so.
Q. Do you?
A. No. But you will remember that I stated that the checked burners did not stop up any more than the unchecked.
Q. They are apt to stop up, aren't they?
A. Most burners have a tendency to stop up.
Q. And when they stop up they are not as efficient as when they are not stopped up?
A. No.
Q. And they flare and do all sorts of things?
A. They are apt to. A checked burner won't flare; an unchecked burner will.
Q. A checked burner when it flares will very often do some of the very things shown in Complainant's Exhibit 341, won't it?
A. I never saw one do that.
Q. It will go off on one side and flare up in the middle and not be regular in form?
A. I never saw a checked burner act that way.
Q. Did you ever see an unchecked burner act that way?
A. I have.
Q. What does a checked burner do when it gets stopped up?
A. Why, it flares to a certain extent, but not as much as
6171 the unchecked burners, because the check in the burner prevents the pressure of gas under the tip from being as high as it is in the unchecked burner.
Q. Have you made your tests as shown on these Exhibits 336 to 339 inclusive in the same manner and with the same kind of apparatus as that used by Professor Hallock?
A. As nearly as I could understand his description, yes, sir; I tried to use the same apparatus that he did, or rather similar apparatus.
Q. I mean similar design and in the same manner?
A. Yes, sir.
Q. Now, I show you a picture here (handing paper) the lower

part of which is supposed to represent a gas jet and the upper part thereof the flame. Written in the bottom thereof are the words "Non-Luminous." Is that the way the great majority of flames from gas burners in this city appear to you?

A. Well, I do not claim to have any acquaintance with the appearance of gas burners in this city. I do not live here and spend comparatively no time at all here, and the time I do spend is on streets that have electric light and not gas.

Q. Now, you have said that you consider the check burner is as efficient over one inch as at those points below one inch indicated by Professor Hallock?

A. I beg pardon?

Q. That the check burner is as efficient with pressures of over one inch as at any pressure below one inch?

A. No, I did not say that.

Q. Then what did you say?

A. I think what you refer to is that I said that the check burner was as efficient above one inch as the unchecked burners were at the lower pressure used by Professor Hallock in his test.

Q. State's Exhibit Y was a commercial four foot bat-wing lava-tipped burner, is that a burner in general use, or don't you
6172 know?

A. It is a burner that is used quite frequently, yes, sir.

Q. State's Exhibit X was a commercial six-foot bat-wing lava-tipped gas burner, is that a burner generally in use?

A. I think it is used a good deal.

Q. By your statement that a check burner under pressures of more than one inch is as efficient as the unchecked burners used by Professor Hallock in his experiments at pressures under one inch, did you have any limit above one inch pressure?

A. Yes, I would not like to use that particular burner that I used in making these tests above three inches.

Q. You have no tests here, have you, of how that burner would behave at such a pressure?

A. No, sir. The governor on the photometer that I was using refused to give me more than 1.33 inches pressure.

Q. You could have gone to higher pressures with your experiment by removing that governor, could you not?

A. And having another one put on. I could have gone a little higher, but in that particular locality I was working from street mains in which it is very difficult to get over two inches pressure at any time without a governor at all.

Q. Where were these tests made?

A. No. 4 Irving Place.

Q. In the office of the Consolidated Gas Company?

A. Yes, sir.

Q. And you took your gas right from the main?

A. Right from the main.

Q. What sort of a governor did you use?

A. It was a wet balance governor.

Q. You did not draw your gas off into a tank and take your gas at that point?

A. No.

Q. Did you test the gas from time to time as you made your experiments to ascertain the composition thereof?

A. Not to ascertain the composition, no.

6173 Q. It might have been a different mixture at one period of your experiments than at another, might it not?

A. Well, as my experiments only ran over—yes, it might have been.

Q. What standard did you use to test the gas?

A. Candles.

Q. Did you check these candles against any other standard?

A. No, sir.

Q. Where did you obtain them?

A. They were candles furnished by the Consolidated Gas Company or bought by the Consolidated Gas Company for use in making their tests.

Q. And they were turned over to them by you?

A. I got them out of the boxes in which they were bought.

Q. Did you make corrections for temperature?

A. You will see it stated that the candle power was not corrected for temperature and pressure; Professor Hallock did not correct it and so I did not.

Mr. KIRBY: That is all.

The MASTER: Mr. Burr?

Mr. BURR: It is five o'clock.

Mr. MATHEWSON: Mr. Forstall has an engagement in Philadelphia to-morrow, and I should like to finish with him.

Mr. BURR: I could not, I have had no opportunity to confer with Dr. Marks or Professor Bemis.

Mr. MATHEWSON: We are not responsible for their not being here, and I object to stopping at this point.

Mr. BURR: I could not finish with him to-night anyway. I do not think it is fair to crowd the mourners anyway. It is five minutes after five, and he has made a very extended review of all these figures and suddenly projected them into this case, and we ought to

6174 have at least a moment's breathing time to look them over. We ordinarily adjourn at five o'clock and it is now five minutes after five.

The MASTER: All of that is true, but at the same time I made Mr. Mathewson go on with your witnesses when there were reams of tabulations and so forth put in. Of course, you are not entitled to any time for conference with your experts, but the question of its being after five o'clock cannot be denied. What time do you have to be in Philadelphia?

The WITNESS: I want to be there at ten o'clock.

The MASTER: Well, you will have to stay here.

Mr. BURR: He can come the next day for cross-examination.

Mr. MATHEWSON: No, I think it is better to have it consecutive.

The MASTER: I want to go on at half past 10 to-morrow, gentle-

men, as there is a possibility, in fact, there is a very strong probability, that I will have to be in the Appellate Division. I do not know when my case will be on, but if I have to be there at the opening of court I want to leave here before 1 o'clock, so we will go on at 10:30.

At 5:05 P. M. adjourned to Friday, January 25th, 1907, at 10:30 A. M.

Last Exhibits:

Complainant's Exhibit, 344.
State's Exhibit, 000.
City's Exhibit, 236.

6175 UNITED STATES OF AMERICA,
Southern District of New York, ss:

I, John A Shields, Clerk of the Circuit Court of the United States of America, for the Southern District of New York, in the Second Circuit, do hereby Certify that the foregoing (Vol. 8) pages, numbered from 5409 to 6174 inclusive, contain a true and complete transcript of the record and proceedings had in said Court, in the cause entitled Consolidated Gas Company, Complainant, Appellee, against Julius M. Mayer, as Attorney General, *et al.*, Defendants-Appellants, as the same remain of record and on file in my office. (Vol. 8.)

In Testimony Whereof, I have caused the seal of the said Court to be hereunto affixed, at the City of New York, in the Southern District of New York, in the Second Circuit, this 15th day of May, in the year of our Lord One Thousand Nine Hundred and eight and of the Independence of the said United States the One Hundred and thirty-second.

[Seal of U. S. Circuit Court, South. Dist. New York.]

JOHN A. SHIELDS, *Clerk.*

[Endorsed:] United States Circuit Court of Appeals for the Second Circuit. —— —— vs. —— ——. Transcript of Record from the Circuit Court of the United States for the Southern District of New York.

6175½ Circuit Court of the United States, Southern District of New York.

CONSOLIDATED GAS COMPANY OF NEW YORK, Complainant,

vs.

JULIUS M. MAYER, as Attorney General of the State of New York; WILLIAM TRAVERS JEROME, as District Attorney of New York County; FREDERICK E. GUNNISON, JOHN C. DAVIES, and LUCIAN L. SHEDDEN, Constituting the New York State Commission of Gas and Electricity, and THE CITY OF NEW YORK, Defendants.

Before Arthur H. Masten, Special Master.

NEW YORK, *January* 25, 1907.

Met pursuant to adjournment.

Present: The Master, Mr. Mathewson, Mr. Burr, Mr. Kirby, Mr. Page.

U. S. Circuit Court, Southern District N. Y. Filed Jun- 24, 1907. John A. Shields, Clerk.

6176 ALFRED E. FORSTALL, resumed.

By Mr. BURR:

Q. You do not contend for a moment, do you, that this calamity of two meters to a small family will happen if the price is reduced to the C' y of New York to 75 cents?

A. I have not the slightest idea it will happen under any conditions.

Q. In other words, your calculation regarding the number of meters necessary would not apply to the city as the sole consumer entitled to the reduction to 75 cents.

A. The calculation, as I understand it, does not affect the reduction to 75 cents at all; it is merely a calculation as to the reasonableness of a certain statement given in the evidence.

Mr. MATHEWSON: By Professor Bemis.

Q. That is an assumption on the part of Professor Bemis. You set up his hypothesis to knock it down.

A. He set it up and I tried to knock it down.

Q. But you have not confined yourself to what the accountants Marwick, Mitchell & Co. found from the books of the company to be the cost of the manufacture and distribution of gas?

A. No.

Q. And you have made no calculation on that basis?

A. No.

Q. Now, for 1905 you claim a profit on one dollar gas of 24¾ cents per thousand, don't you?

A. No, I said on the figures introduced by Professor Bemis, that he assumed there was a profit of that amount.

Q. That is the assumption that you have adopted for the purpose of your reasoning, for the purpose of your calculation?

A. That is the assumption that I found there and on which I proceeded to work.

Q. It would make the cost of gas about 77¼ cents, assuming that the testimony is correct here, that in 1905 the Consolidated
6177 Gas Company received $1.02 per thousand cubic feet?

A. Yes.

Q. Now, Marwick, Mitchell & Co., in Exhibit 87, figured the cost of gas from the books of the company at 52½ cents per thousand. Do you recall that?

Mr. MATHEWSON: No, they did not. That 52½ cents is not on anything, sales, make or anything else; it is a mongrel figure and is not computed on sales. It does not purport to be.

Mr. BURR: That is your characterization of the figure, but that is what they claim they find to be the actual cost of the manufacture and distribution of a thousand feet of gas.

Mr. MATHEWSON: Per what, per thousand made or per thousand sold?

Mr. BURR: The report shows what they state.

Mr. MATHEWSON: There is absolutely no quantity dividing or divided to produce that amount, but go ahead.

The MASTER: Well, ask your question on the basis of an assumption that it does so appear from their report.

Q. Assuming that the price, 52½ cents, found by Messrs. Marwick, Mitchell & Co. in their report as the cost of manufacture and distribution of a thousand cubic feet of gas is correct, would not the gross gas manufacturing profits for 1905 amount to $6,575,085?

A. I would have to—what return for gas are you assuming there, Mr. Burr?

Q. 52½ cents.

A. That is the cost, but the return to the company for the gas sold, the price of gas? The price of gas is really one dollar.

Mr. MATHEWSON: Mr. Bemis' assumption, on which the witness is testifying, was the sale at 85 cents.

6178 Mr. BURR: I am still sticking to the $1.02.

Mr. MATHEWSON: That has nothing to do with the testimony this witness has given. He has taken Professor Bemis' figures and figured out what the result would be.

Mr. BURR: I am asking about some other figures now.

Mr. MATHEWSON: I do not think it is proper to take up that figure which has no relation to what the witness testified to.

Mr. BURR: You want to figure and stick to those figures and I want to do a little more figuring.

Mr. MATHEWSON: No, of course, if you have thirteen billion feet of gas and assume it cost 52½ cents and you sell it for $1.02 it is simply two times two equals four to assume what the profits will be, but it has nothing to do with his testimony. He has assumed a selling price of 85 cents, which Professor Bemis did, and showed that Professor Bemis's statements were ridiculous on that assumption.

Mr. BURR: I object to all this criticism of the testimony.

The MASTER: Let us go ahead. If the question is objected to I will pass upon it.

Q. (Repeated as follows:) Assuming that the price 52½ cents found by Messrs. Marwick, Mitchell & Company in their report as to cost of manufacture and distribution of a thousand feet of gas is correct, would not the gross gas manufacturing profits for 1905 amount to $6,575,085? Is not that so, Mr. Forstall?

Mr. MATHEWSON: I object to that as not cross-examination, and furthermore as the counsel himself will recall, if he will think
6179 a moment, in getting the 52½ cents Messrs. Marwick, Mitchell & Company deducted the miscellaneous income which made the difference between that and $1.02.

Mr. BURR: I call your attention to the report of Marwick, Mitchell & Company as it appears at page 1431, final conclusion:

"First, we find that the total cost of manufacturing and distributing the gas sold to private consumers in the City of New York by the Consolidated Gas Company during the year 1905 was 52.04 cents per thousand cubic feet. This cost includes a charge for depreciation of 1.71 per thousand cubic feet, the same as made by the company in its accounts."

And I am addressing myself to that situation and asking him to do some figuring on what was actually found and not based on any assumption or hypothesis of Professor Bemis. It is very easy——

Mr. MATHEWSON: But the 52.50 was obtained by deducting from the 1.02 the miscellaneous income which went to make that up, and now you are asking us to take an amount which has that miscellaneous income and deduct it from an amount from which it is deducted——

The MASTER: He may answer it if he can. The objection goes not so much to the form of the question, but as to the merits of the case.

The WITNESS: If I can make the computation——

Q. That is what you did yesterday.

A. I do not get exactly those figures——

Mr. MATHEWSON: Just a minute, has the Master ruled on my objection as to the propriety of such a question as that?

The MASTER: Yes, I allowed the question.

Mr. MATHEWSON: Exception.

6180 Q. What did you make it?

A. I used the multiplier 13,283,164 and get the result 6,575,166.

Q. Now, you do not assume to say what the cost of gas is or was?

A. I have not investigated that question at all.

Q. So that you do not assert that the cost of gas was or is 77¼ cents per thousand?

A. No, sir.

Q. Well, that would be the result, Mr. Forstall, if you subtracted the 24¾ cents from the $1.02, would it not?

Mr. MATHEWSON: Just a moment. What is the use of asking that

kind of a question when Mr. Forstall's entire testimony was directed to Professor Bemis' proposition, if you sold the gas at 85 cents you would get a certain price? Now, he says if you get $1.02 would you not get a certain other. Of course you would. It is wasting time.

The MASTER: I do not know what counsel has in mind, but I will let him ask a question or two on this line. I do not myself see the pertinence of it. It seems to me it is a matter of argument on brief.

Mr. BURR: That is what we claimed yesterday as to the whole of Mr. Forstall's testimony, that it was a matter of brief. And Mr. Kirby objected to it very properly at the time.

Q. Now, the profit, Mr. Forstall, of $4,588,000 appearing on Exhibit 96, page 382, net earnings as it is called there, net profits, is nothing but what the Consolidated Gas Company calls its net profits, and not its manufacturing profit on gas as figured from the examination of Marwick, Mitchell & Company.

Mr. MATHEWSON: What that is is shown by the exhibit.

6181 The WITNESS: I do not know what it is. I have never seen that exhibit. I would have to examine it and see before I could say, and I might not be able to say then.

Q. It is so stated——

The MASTER: Then, if it is so stated, that ends it. There is no use of asking this witness about it.

Q. Then the difference between the $6,575,085 and $4,588,000 is $1,987,000, profits on gas manufactured and elsewhere expended.

Mr. MATHEWSON: I don't know about elsewhere expended.

A. It gives a difference of that amount. I don't know what the difference represents further than it is the difference between those two sets of figures.

Q. If we add this $1,987,000 to the reduced net profits, $3,288,000, granted by Professor Bemis, we have a total gross profit of $5,275,000, have we not?

A. We have a total of $5,275,000, yes, sir.

Q. If the price of gas is reduced to 80 cents per thousand and the cost is allowed to remain as high as 52½ cents, will not the profit per thousand be 27½ cents?

Mr. MATHEWSON: Well, your witnesses went over that and over that and said yes, it would be.

A. If the cost is reduced——

Mr. MATHEWSON: If the cost of gas should be 52½ cents——

6182 Q. I will repeat my own question. If the price of gas is reduced to 80 cents per thousand and the cost is allowed to remain as high as 52½ cents, will not the profit be 27½ cents?

A. The difference between 80 cents and 52½ cents is 27½ cents.

Q. If we divide the gross manufacturing profit of $5,275,000, as deduced in those figures I have given you, the sum of $1,987,000 and the reduced net profits, $3,288,000, I say if we divide the gross manufacturing profit of $5,275,000 by 27½ cents, does it not give

a total sale of 19,182,000,000 cubic feet to about 68 per cent of your population for 1908, or 2,270,257 for Manhattan?

Mr. MATHEWSON: Now, if the Master please, this so-called manufacturing profit of $5,275,000 is obtained by taking the one dollar rate and computing what the profits are for the past year. Now, the witness is asked to take that amount and assume a situation at which 80 cents would be charged, which, of course, would not give the same profit, and deduce Heaven knows what; I cannot follow it.

The MASTER: Well, let him answer it, and we will see where it will land him.

A. What was the question again?

Q. (Repeated.)

Mr. MATHEWSON: 68 per cent. of the population?

Mr. BURR: He gave the population of the Borough of Manhattan as 2,270,257.

The MASTER: I thought the Consolidated sales were 68 per cent. of the entire sales in Manhattan?

Mr. BURR: Yes; and 68 per cent. of the population is 1,543,775.

Mr. MATHEWSON: I don't know how you can divide it in that way.

6183 The WITNESS: Dividing of 5,275,000 by .275 the quotient is 19,182,000,000—it is 19,182,800,000, which is practically the same.

Q. You gave the population of Manhattan in 1908 as 2,270,257, didn't you?

A. That was the estimate, yes, sir.

Q. And 68 per cent. of that would be 1,543,775, would it not?

Mr. MATHEWSON: If it would, what would that show? We never claimed that we were serving 68 per cent. of the population of New York, and it is not our testimony anyway, even as to any 68 per cent.

The MASTER: Well, Mr. Mathewson, I will allow the question., I want to let Mr. Burr go on a reasonable length of time and see if I can get at what he is trying to reach in regard to the testimony of the witness yesterday, as to this question of meters, and I cannot tell until he gets further along whether he does or does not arrive at any result.

The WITNESS: 68 per cent. of 2,270,257 is 1,543,775.

Q. Now, if you divide that figure of 1,543,775 into 19,182,000,000 cubic feet you obtain 12,425 cubic feet per capita, don't you?

The MASTER: Let me ask you, Mr. Burr, is the result of the examination of this witness going to be to impeach the correctness of the calculation the witness gave yesterday in any respect?

Mr. BURR: Yes, I think so.

The MASTER: In what respect? Because I cannot see now what it is leading to on the question of attacking his direct examination.

Mr. BURR: I have but three or four questions more. They
6184 are all part and parcel of each other, but I will read you all the questions I have here, if you wish.

The MASTER: In other words, what do you show to be wrong in regard to this calculation of the number of meters on the basis he took here?

Mr. BURR: We claim that he errs in the percentage of the increase of the number of meters that will be used..

The MASTER: I understand, but he figured on a certain assumed price of gas and on a certain assumed cost of gas, and as I understand your question, you are putting to him an entirely different price of gas and an entirely different cost of gas. You are figuring on one dollar gas and 52½ cents cost, and he was figuring on 52.50 cost and on 85-cent gas. I do not see if you continue this indefinitely that you will get at anything which impeaches the correctness of his calculation, and that is the only province of cross-examination.

Mr. BURR: As we said yesterday, it was a mere calculation, but you allowed him to make a calculation and it leads to an apparent absurdity.

The MASTER: He was allowed to make it because he claimed to show his calculation an error in Professor Bemis' calculation. Now, I will allow you to show the same thing on cross-examination as to what he has done, but what I do not perceive now is where you are going to arrive, if you proceed along the lines you are now pursuing.

Mr. BURR: Can I get the answer to the question?

The MASTER: Have you got the calculation?

6185 The WITNESS: I do not remember the figure that was given, and before I check over my figures I want to see whether it agrees or not.

Q. (Repeated as follows:) Now, if you divide that figure of 1,543,775 into 19,182,000,000 cubic feet you obtain 12,425 cubic feet per capita, do you not?

A. That is the result of the division.

Q. From your experience, Mr. Forstall, as you have stated it yesterday, in the gas business, is it not true that the construction of apartment houses in New York will be likely to force a greatly increased use of gas for cooking and heating?

A. No, as far as the increase is concerned——

Q. You do not know, or no?

A. I say no. I would like to explain that if I can.

Q. Yes, please.

A. I think that the construction of apartment houses has already brought about a very large sale of gas in New York City, and that the increase that will come from the construction of apartment houses in the future, the increase in the sales of gas that will come from the construction of apartment houses in future, will be merely in proportion to the number of apartment houses built, which would be approximately in proportion to the population.

Q. Then you do not believe, as a gas engineer, that the use of gas as fuel is on the increase?

A. As a general proposition, yes, it is on the increase. As a special proposition for New York City, I think it has about reached its limit per capita of population.

Q. As a matter of fact, would you not say that the use of gas for fuel and power is on the increase?

A. I do not think there is much increase in the use of gas for power. That is, the percentage increase of the gas used for power may be pretty large, but the increase in proportion to the total amount of gas sold is very small.

6186 Q. But you know the testimony in this case of Messrs. Addicks and Humphreys is that the per capita consumption of gas is about 9,200 feet in New York?

A. Yes, sir, I have heard that testimony.

Q. That was with gas at one dollar?

A. Yes, sir.

Mr. BURR: Well, I will not press this further in view of the Master's attitude. I thought that I might ask him to make a calculation based upon other evidence in this case.

The MASTER: I think the brief is the place for that.

Mr. BURR: I think so, too, and I think his whole statement as given yesterday should be incorporated in the form of a brief.

Mr. MATHEWSON: Professor Bemis had nothing but the figures presented and did not pretend to know anything about the gas business, and he spent days going over those figures and making deductions. What is the use——

The MASTER: Go on with the rest. What else do you wish to ask him?

Mr. BURR: That is all.

Mr. KIRBY: I would like to ask the witness a few more questions. I was rather limited yesterday.

By Mr. KIRBY:

Q. Complainant's Exhibit 339, showing photometric tests with the commercial fishtail burner No. 5, checked; is it not a fact that such burner shows a greater efficiency with one inch pressure than with 1.18 pressure?

A. Yes.

Q. You stated yesterday that you took your pressure readings at what point of the burner?

A. For all burners the pressure was taken directly at the base of the burner itself, and for unchecked burners that necessarily

6187 gave the pressure at the tip; for checked burners it gave the pressure on the inlet side of the check.

Q. Were any pressures taken by you between the check and the tip?

A. No, sir.

Q. You also stated that you used a governor to regulate the pressure as given to the burner. Do you consider that the pressure and consumption was in any way restricted by the use of that governor?

A. No. The pressure was cut down a little by the friction of the gas passing through the governor. What was the other part of the question?

Q. The consumption.

A. The consumption was not cut down, because I set the governor to give the pressure that I wanted to use.

Q. Does the governor itself in its measurements regulate for the friction of gas passing through it?

A. The governor is provided for the purpose of maintaining an even pressure from its outlet, from which the gas is supplied to the burner, so that the amount of gas consumed will not be constantly varying from second to second, making your flame give different amounts of light from second to second or minute to minute, that is the only effect that it has.

Q. What kind of a burner did you use in ascertaining the candle power of the gas as set down in the bottom of each exhibit?

A. I used a burner that Dr. Love, the City Gas Examiner, has very often told me that he used, a No. 7 low pressure Bray slit union; and another reason for using that was that Professor Hallock said that he used it.

Q. And did you measure the candle power of each gas with this burner before performing your experiments?

A. For each series of tests, if they extended over any great length of time, that is over, say, three hours, I took the candle power of the gas that I was using at the beginning of the series, and as the very last thing at the end of a series.

6188 Q. And what pressure did you use in the test for the candle power of the gas?

A. Why, I did not make a note of that, Mr. Kirby, but my recollection is it was somewhere between .55 and .6 of an inch.

Q. And where did you take that pressure?

A. That was behind the check in the burner. In making the test I adjusted the governor to burn at the rate of 5 cubic feet per hour in that burner, or practically at that rate. In some tests I may have got .02 of a foot above or below. In making the tests I followed the practice of Dr. Love with which I am familiar, and also which I understood to be Professor Hallock's practice, based upon Dr. Love's.

Mr. MATHEWSON: What burner was that you just referred to?

The WITNESS: It does not show in this exhibit. It is a burner I took the candle power with, the figures for candle power being given in these exhibits.

Q. Now, if your pressure had been taken between the check and the tip it would have indicated a different pressure than that taken by you, would it not?

A. It would, yes.

Q. And would that pressure have been higher or lower?

A. I would naturally expect it to be lower.

Q. And that is because the check cuts down the pressure?

A. Yes.

Q. Now, do you consider that with a pressure at the street main of say three inches, or, better, say at the point where the gas enters the house meter, a pressure at that point of three inches, that the pressure at the point of ignition in a check burner might rise as high as 6.2 inches?

A. That would be a matter of speculation. I would not have any idea as to how high it would rise.

Q. Do you consider that the reduction of the cost of elec-
6189 tric currents to 10 cents per kilowatt hour has sent many customers who formerly used gas to the use of electricity?

Mr. MATHEWSON: Is that a proper question?

Mr. KIRBY: I should think it was very proper, inasmuch as he has been making certain deductions as to what would happen in the future based upon his experience and knowledge of the gas business.

Mr. MATHEWSON: He rather testified as to what could not possibly happen, which was Professor Bemis' result, rather than what could happen in electricity or anything else. I shall not object if you wish to push the question.

A. I should expect a reduction in price in any rival illuminant to take away from the gas company a certain number of consumers. The exact number or percentage it is very hard to say.

Q. And would you not think that the converse of that proposition would be true?

A. That if the price of electricity was increased it would add consumers to the gas company?

Q. Yes.

A. If the price of any competing illuminant is increased it makes it easier for the gas company to substitute gas for that illuminant.

Q. Then does it follow from that that if the price of gas be reduced to 80 cents that the customers in whole or in part who have turned over to electric current at 10 cents per kilowatt hour would come back to the use of gas at 80 cents?

A. Why, they might in part, yes; possibly.

Q. You nor no one else is prepared to state as to how many?

A. No. I am prepared to say, though, that even at $1.00 the cost of gas properly used is pretty well below the cost of electricity,
6190 and the part of the population who consider economy and the price of gas would keep gas at $1.00, and, therefore, would not come to it at 80 cents; they would be there at $1.00.

Q. And if, by reason of persuasive powers of the electric light company, they turned to the use of electricity they would be much more apt to come back to the use of gas at 80 cents than they would at $1.00?

A. They would not be as apt to come back as they would be apt not to have listened to the offers of the solicitors. After they have changed over they are not as apt to come back.

Q. In reference to meters, many families have two, three or even four meters to the family, have they not? One for the residence, one for the store, another for the factory, and some have them for the lighting of their residences and another meter for the heating?

A. I should not think that would—the use of a meter for the lighting and the use of another for heating would not obtain in New York City. Of course, there are cases where a man has a meter in his residence and a meter in his store, and possibly—well, he might have, possibly, a further meter in his factory, but that would be very, very rare.

Q. It would be all the same family?
A. Yes.
Q. Is it not a fact that in many apartment houses in the city the rent of the apartment includes the lighting of it, but not gas for cooking?
A. I don't know, Mr. Kirby.
Q. If that were so it would necessitate two meters, would it not?
A. If the apartment were lighted with gas, it would.
Q. We are assuming that. Are you not aware that in Glasgow, Scotland, there are nearly two meters to the family at a price of gas not much less than in New York?
A. I was not aware of it, but they do some queer things in municipal plants.

6191 Mr. KIRBY: That is all, I think.
Mr. BURR: Just one question.

By Mr. BURR:

Q. You have assumed in your calculation, have you not, that a meter will not register any more gas in 1908 than it did in 1905?
A. Yes; as I answered that question yesterday I said that I had assumed that the sales of gas per meter would not be any larger in 1908 than they were in 1905.
Q. But you do not mean to say that those meters now in existence would not, in the event of a reduction in price, be able to consume and register more gas?

Mr. MATHEWSON: What do you mean? Do you mean to say that the meters could be so constructed that for 1,000 feet of gas they would register 1,500 feet?
Mr. BURR: No.
Mr. MATHEWSON: What is the use of the question?
Mr. BURR: He says on the basis of the consumption per year of 35,227 feet per active meter——

Q. You do not mean to be understood as saying that a meter cannot register more than that?
A. Allow me to correct that. I think you said that was the consumption in 1905. My impression is that the sales per meter in 1905 were not that amount, but that was the sale per meter in 1904.
Q. So that you have used in your calculation the number of feet registered by your meter in 1904?
A. I think it is 1904; that Exhibit 86 would show.
Q. You refer to the exhibit I see, Exhibit 86?
A. I can tell in a minute; I have it right here in my notebook. Yes, that was for the year 1904.

6192 Q. Do you know what the Consolidated Gas Company's gas meters registered in 1888?
A. No.
Q. Have you got Exhibit 86 here?
A. No, I have just some few figures I had copied.
Q. I call your attention to Exhibit 86, and ask you if it does not appear from that complainant's Exhibit 86 that in 1888 the average

sales per meter of the active meters of the Consolidated Gas Company were 39,731 feet?

A. It does.

Q. During the gas war, 1898 to 1900, did not the meters increase to 58,344?

A. I would like to see the exhibit.

Q. Or 29,172 feet per year, with gas at 82.85 cents average?

Mr. MATHEWSON: 29,000 feet a year? No such thing.

Q. In 1898, from this complainant's Exhibit 86, it appears that the active meters on district in 1898 was 253,816, and in 1899, 289,357?

A. Yes.

Q. And in 1900, 311,960?

A. Yes, sir.

Q. That was the period during which the so-called gas war continued?

A. I have it so marked in my notebook.

Q. From 1900 to 1905 have not your meters increased 78,370, or only 15,674 per year, with gas at a dollar, referring to the same exhibit?

A. Yes.

Q. Or only 15,674 per year with gas at one dollar?

A. Yes.

Q. Since 1898 to 1905, has not the registry of meters increased from 29,000 to 34,000 cubic feet?

A. I think in 1898 the figures were 28,800 and some odd feet, I have not the exact figures; and in 1905 they were 34,000 and some odd feet.

Q. You heard Mr. Addicks testify that there will be an increase of 10 per cent.?

A. No, I did not hear Mr. Addicks' testimony except a few fragments of it, five minutes at a time.

6193 Q. Now, Mr. Addicks has allowed for an increase in oil of 10 per cent. in the amount of oil required; that would mean more than an allowance of 10 per cent. increased water gas, would it not?

Mr. MATHEWSON: I shall have to object to this. It seems to me that we are going entirely outside of anything that was suggested, even by name, with this witness.

Mr. BURR: We are still harping on the meters. We have this important fact that he has been assuming in 1908 that the consumption of gas stood still and that the registry of gas has stood still since 1904, and upon that he is basing his calculations as to the number of meters which will be required in 1908.

Mr. MATHEWSON: The witness has not made any such assumption as you suggest, and if he had, the matter of oil would not affect the question.

Mr. BURR: He has said, that being so, there would be a certain number of meters needed at that time. I am going to ask if he will figure on Mr. Addicks' increase of 10 per cent., without taking any-

thing else into consideration, would not this reduce the number of meters required by 209,568, leaving only 34,998 new meters to be added in three years, or 11,666 per year, which figure is not excessive.

Mr. MATHEWSON: Mr. Addicks has not testified to any such thing. He testified that he gave 10 per cent. in order to get a large figure which would surely cover it; that he thought it would more than cover it when he ordered them.

Mr. BURR: I say, assuming his 10 per cent., does it not follow as I have stated this question that I have asked Mr. Forstall?

6194 Mr. MATHEWSON: It has no relation to it.

The MASTER: I do not see what the oil has to do with it.

Mr. BURR: Assuming a 10 per cent. in the increase of oil, it increases the gas.

The MASTER: The supply of oil increases 10 per cent. each year over the preceding year?

Mr. BURR: There is an increase in the supply of oil of 10 per cent. which must necessarily mean an increase in the production of gas of 10 per cent.

Mr. MATHEWSON: It does not, anything of the sort, because here we have coal gas and we might increase coal gas and make less water gas, and use less oil, as Mr. Addicks testified. The question virtually is this, if the increase of gas would be 10 per cent., what about the number of meters you would require, that is the question, if anything.

Mr. BURR: If you object to the statement that it was Mr. Addick's testimony, I will say, assuming it is stated.

Q. Assuming the increase of 10 per cent. in the consumption of gas, would not this reduce the number of extra meters by 209,468, leaving only 34,998 new meters to be added in three years?

Mr. MATHEWSON: You mean 10 per cent. a year in the output of gas, or 10 per cent. all told for the three years?

Mr. BURR: Just let the witness answer, if he understands the question.

Mr. MATHEWSON: No, but I would like to understand the question, and I think I am entitled to.

Mr. BURR: What do you want to know?

6195 Mr. MATHEWSON: Whether the ten per cent. is the increase you assumed to cover the three years or per annum?

Mr. BURR: Ten per cent. per annum.

The MASTER: That is what I wanted to know, whether you mean the consumption of oil was assumed to be ten per cent. more in any one year than in the preceding year; in other words, whether in the period of three years the total consumption of oil would have increased thirty odd per cent.

Mr. BURR: Yes. As I understood Mr. Addicks he said that for 1908 it will have increased ten per cent.

Mr. MATHEWSON: No, he did not testify to that at all.

Q. Well, leaving Mr. Addicks out of the case altogether, if we can, and assuming an increase in the consumption of gas of ten per cent.

in 1908, would that reduce the number of extra meters required by 209,468?

A. I thought I understood the question at first, but you have mixed me up. You mean that the sales of gas in 1908 would be ten per cent. greater that the sales in 1905?

Q. Yes, that they have increased ten per cent. a year since 1905.

A. That is they would be thirty per cent. greater in 1908 than in 1905?

A. Yes.

A. My answer is no.

Q. How do you know you could have obtained the same efficiency with gas having a two-inch pressure, as with gas having less than one inch if your photometer could not register a test above 1.33, by reason of the governor?

A. Because my experience with those burners has taught me for pressures up to 2½ inches at the base of the burner they are all right, their efficiency changes very little.

6196 Q. How can you assume efficiency at pressures which cannot be registered on a photometer?

A. I was not estimating efficiencies as a result of that test, but as the result of my previous experience.

By Mr. MATHEWSON:

Q. With photometers that would register higher pressure?

A. Yes.

Mr. BURR: That is all.

Redirect examination by Mr. MATHEWSON:

Q. Referring to Exhibit 86, as a matter of fact it appears, does it not, taking the whole period altogether, that in 1885, 1886, 1887, 1888, etc., the company sold from thirty-six to thirty-eight or thirty-nine thousand feet per active meter and that that has fallen in the year 1905 to thirty-four thousand and thirty-one feet per meter?

A. That is so.

Q. In other words, the consumption per meter has fallen?

A. Yes.

Mr. BURR: Do you know the cause?

Mr. MATHEWSON: Yes.

The WITNESS: It has not only fallen from in the 80's to 1905, but it has fallen considerably from 1904 to 1905.

Q. And is it not your experience that with the increase of consumption and the getting in of the small consumers that the decrease per meter does naturally follow?

A. Yes, the increase in sales after a certain point is reached is bound to come from getting in of small consumers.

Q. And, therefore, more expensive per consumer to the company.

Mr. BURR: I would rather you would ask the witness to give his own facts upon it. You have been continually putting words

6197 in the mouth of this witness and in the mouths of every other witness.

The WITNESS: Certain expenses depend entirely upon the con-

sumer and upon the amount of gas that he burns, and a small consumer is necessarily more expensive in proportion to the company than a large one.

Q. Where you have two kinds of gas, both fuel at one price and one quality, and illuminating gas of another price and another quality, there might be two meters in a house for that purpose, might there not?

A. Yes, there are.

Q. But you are speaking of New York conditions?

A. I am speaking of New York conditions.

Q. And is not the same kind of gas delivered in New York, so far as you know?

A. The same gas and at the same price.

Q. You do not know whether they furnish different qualities of gas in Glasgow for illuminating and fuel, do you?

A. I don't know anything about the Glasgow conditions.

Q. You were asked with reference to the effect of electric light on the sales of gas. What would be the effect if the electric light appliances were to be improved so as to make three times the efficiency at the same cost?

A. It would necessarily reduce the cost of electric light to one-third of its present cost and by so doing make it a very much more effective competitor of gas than it is at present.

Q. Do you know whether there are such appliances now in use?

Mr. KIRBY: I object.

Mr. BURR: I understand Mr. Forstall did not claim to be an electric light expert?

Mr. MATHEWSON: No, he does not, that I know of.

6198 Q. If you say you don't know I suppose there is no objection to that?

Mr. KIRBY: He can go on, if he does not know, but if he does know I would——

Mr. MATHEWSON: You don't want him to go on if he does know?

Mr. KIRBY: I would rather state it myself.

Q. I will take your answer over the objection.

A. I think it is a matter of common knowledge among lighting or illuminating engineers that there are several lamps on the market which cut down the current per candle power to something like one-half of the requirements of the ordinary carbon filament lamp. The General Electric Company are putting out what they call the tantalum lamp, for instance.

Mr. KIRBY: I understand this goes in over my objection.

The MASTER: I did not understand the ground of the objection.

Mr. KIRBY: On the ground it is not proper rebuttal, mainly.

The MASTER: It is proper redirect on the cross-examination, surely.

Mr. KIRBY: I do not know that anything has been brought out on the cross-examination in reference to the appliances for the use of electric current and the efficiency thereof and the problematical

question of what the future is going to bring forth, whether they burn with more efficiency or whether they do not; it opens up a large sphere of speculation?

Mr. MATHEWSON: That is the only question I have on that subject, but it is directly related to the questions of counsel for the defendants.

The MASTER: I will allow it.

6199 Mr. KIRBY: Exception.

Mr. MATHEWSON: And it has been answered.

Q. As to your pressure taken behind the check, that would show, would it not, substantially, the pressure in the main with what small falling there might be between the main and the foot of the burner?

A. It would show the pressure of the main less whatever loss of pressure there might be between the main and the foot of the burner.

Q. In other words, it has some practical relation to the pressure law?

A. Yes.

Q. Now, taking this checked burner, what is the effect on the flame at the outlet where ignition takes place?

A. The check is so designed that its area, the area of the orifice in it is smaller than the area of the orifice or the orifices through the tip and the relation between them is chosen so that at the pressures for which the checked burners are designed to be used the pressure under the tip will be the proper pressure for the most efficient consumption of gas.

Q. It delivers it with less swirl to the burner?

A. As the burner is designed a piece of wire gauze is inserted between the check and the tip, which steadies the flow of gas and delivers the gas to all parts of the orifice in the tip at the same rate and same pressure and by doing that makes the flame uniform over its whole surface.

Q. In some of the photographs two flames appear from burners on the same pipe. Was that pipe large enough so as to deliver substantially the full pressure to each burner?

A. It was.

Q. Now, as to the Bray high pressure burners, the question was asked of you yesterday as to burners in general use. Is the Bray high pressure burner, which you have shown as giving you

6200 results of high pressure, in general use?

A. Yes, it is.

Q. In the City of New York, so far as your observation goes?

A. Yes.

Q. My question, in other words, is whether it is an unusual burner or one not commonly in use?

A. It is a very common burner.

Q. As to table top burners, such as described by Mr. Addicks, have you ever made tests as to the candle power given by the table top burners as compared with the ordinary Bray burner, say No. 6?

A. I have.

Q. And what is the percentage of efficiency or candle power of one over the others, pressure and other conditions being the same?

A. Eight per cent. in favor of the table top.

Q. I will ask you a final question. As to comparison of efficiency of gas or cost per candle of gas as reported by different companies, is it possible to make a comparison which will be reliable or valuable without knowing the apparatus with which the tests are made, the experience and capacity of the tester and all other conditions surrounding such tests?

A. The figures as to efficiency, of course, depend entirely upon the accuracy of the photometric readings upon which those efficiencies are based, and my experience with the photometrical arrangements at a number of gas works, and the manner in which the photometer tests are taken, has put me into a state of mind in which I will not accept anybody's photometer results as being right until I have examined the photometer, the room and the method in which the tests are made. No comparison can be made between two tests unless you know that both tests are accurately made, and I think that the presumption is in favor of their not being accurately made until you know the conditions.

Q. You mean to say that that is the result of your experi-
6201 ence from tests and revision of tests?

A. Yes, sir, that is from my experience as to the way in which tests are made in quite a number of gas works.

Recross-examination by Mr. KIRBY:

Q. When did you make your comparative tests between table top burners and Bray check burners?

A. I think it was September, 1892; I am sure of the 1892, and I think it was September.

Q. Where did you make them?

A. In the photometer room at the Market Street gasworks in Newark, New Jersey.

Q. What kind of gas was used?

A. A mixture of 47 per cent. of coal gas and 53 per cent. of carburetted water gas.

Q. What was the resulting candle power?

A. By the works test something over 22, I don't remember exactly, I did not put it down in my book——

Q. By your test?

A. That was my test, the works test. And by the City Examiner 21.87. I put that down.

Q. Do you know whether or not this table top burner was designed for testing candle power of low candle power gas?

A. Why, I don't know. I have an impression that it was designed for use in England. I know it was designed for use in England, where, as a rule, candle powers are low.

Q. You say Bray burners are in general use in the City of New York. What do you mean by general use?

A. That it is not an unusual thing to see them and find them.

Q. You cannot give a better definition than that?

A. As I said yesterday, my knowledge of the conditions in the City of New York is not detailed, and it is pretty hard to say. In walking along last night, having had my attention called to
6202 the fact, recalled to it by your cross-examination, I noticed the burners along Washington Street, well, from Vesey, I think, is where I began to get into the region where they were burning gas, up to Warren Street, where I turned off to go to the ferry, and I should say that of the burners that I looked at, about 30 to 40 per cent. were Bray checked burners.

Q. You looked in the store windows?

A. I looked in the store windows.

Q. Did not walk through the buildings?

A. No, I had not time.

Q. But your experience here in the city on such matters is not very great, is it?

A. No, but reasoning from analogy I know that the Bray burner is very common in Newark and Jersey City and around there, so I should imagine it was in New York.

Q. But New York is peculiar, you know?

A. The conditions in New York are similar to those of Jersey City and Newark, in that the companies in all those cities give away Bray burners.

Q. Mr. Forstall, what do you consider would be the effect if the appliances for the use of gas were so improved as to increase the efficiency of the use of such gas?

A. Well, I know what the effect of one increase in efficiency has been, and that is the adoption of the Welsbach burner, which has been to prevent the gas companies from having as great an increase in sales as they had before.

Q. Don't you think that would also apply to your answer in reference to increased efficiency of electric light?

A. I think very possibly it would cut down the increase in the sales of electricity by the electric light company; it would not cut down the increase in the number of people who used electric light in preference to gas.

Q. The question, I suppose, that concerns the gas and electric light companies is not how many persons are using the light, but
6203 how much current or gas is sold?

A. The gas companies—I cannot answer for the electric light companies—but the gas companies desire to sell as much gas as possible, but they also desire to have as satisfied a consumer as possible, so they will not have to look after him all the time to keep him from going somewhere else; therefore, the gas companies will welcome any more efficient appliances for the use of gas than have been brought out.

Q. As a matter of fact, is not the mantle burner to-day so improved over the original Welsbach burner that the efficiency of the present mantle burner is some four times that of the original Welsbach?

A. Which do you mean by the original Welsbach?

Q. I mean the Welsbach mantle which came into use——

A. Of what year?

Q. Some fifteen years ago, say.

A. Well, I tested some Welsbach mantles in 1886 or 1887, and I think that is the first time they were introduced into this country; in fact, the patent was granted in 1885 or 1886 to Welsbach; and I should say, as I remember those tests, that the present burners are 2½ to 3 times as efficient as the burners I tested at that time.

By Mr. MATHEWSON:

Q. You were secretary of the American Gas Light Association for some years, were you not?

A. I was secretary for eight years.

Q. And an officer otherwise?

A. After resigning from the office of secretary I was made third vice-president and promoted to be the first vice-president, at the time of the dissolution of the association and its entering the American Gas Institute.

Q. Are you a member of the American Society of Me-
6204 chanical Engineers?

A. Yes, a member of the Society of Mechanical Engineers, and the Societé Technique de l'Industrie du Gaz en France.

Q. That is the French company, I suppose?

A. Yes, that is the French association.

OSCAR H. FOGG, recalled for further examination, testified as follows:

Direct-examination by Mr. MATHEWSON:

Q. Mr. Fogg, was your attention drawn to Mr. Edgerton's testimony in reference to pr-ssures that he took at certain points, and his argument that the pressure within the districts or any particular district would be found within the boundary of 1.5 inches or might be?

A. Yes, it was.

Q. Have you taken pressures upon various points in various districts and presented the result of such pressures for the different hours of the day selected upon a chart so as to show the difference in pressure at different points, the same initial pressure remaining at the station?

A. I have had profiles made up from charts that were taken, yes.

Q. These profiles to which you refer were made up, were they not, from recording of actual Bristol gauges put at different points with which you are familiar?

A. Yes.

Q. Were they checked and revised by you?

A. The gauges on the districts are always checked by the man removing the chart. I make it a point to frequently inspect gauges on the district myself. These charts that are presented have not been taken off by me directly. I have examined every chart taken from the gauges every day as they are brought in.

6205 Q. By your men?

A. Yes.

Q. And you have the original gauges for each district, have you?
A. Yes, sir.
Q. And you have the men here who took them off the points which are indicated on each particular gauge for examination, if desired?
A. Yes, sir.
Q. Now, will you take the first chart which you have?
A. Is there any particular district which you want to start with?
Q. No, in any order that you please, Mr. Fogg.

(Witness produces chart.)

Q. Now, this chart that you show represents the territory supplied by the 99th, 111th and 132d Street stations, does it not?
A. Yes, sir.
Q. And are the places where the gauges whose results are charted, located, indicated on the map at the right of the main chart?
A. They are.
Q. And the reading of each station is indicated by a line here corresponding to the color which is placed opposite that station, in the schedule at the right, is that correct?
A. It is.
Q. So that by noting the color of the line you can in each case ascertain the station at which the reading was taken?
A. That is correct.
Q. Now, what date does this chart represent?
A. That chart represents the pressure for twenty-four hours, ending at 7 o'clock, January 17th—7 A. M.
Q. And at the top of this chart we have the various hours, have we not?
A. The various hours of the day.
Q. And that applies to each horizontal or ragged line, is that right?
A. Each vertical line here, the hour and the point at which the ragged line or pressure line intersects it, the pressure at that time.
6206 Q. And pressures are at the right and left in duplicate of the chart?
A. Yes.
Q. I call your attention to this reading about a quarter before 7 P. M., what is the highest reading, the broken line in orange?
A. That is the pressure at the 132nd Street station, the works pressure.
Q. Now, take these gauges; except so far as the station pressure is concerned, they represent places where there are actual services?
A. They are on actual services in every case, those referred to as district gauges.
Q. And do these charts and the profiles of the others you will present this morning represent the actual normal working conditions of the company?
A. Yes.
Q. No change of pressure or anything else to meet any special requirements?

A. None whatever.

Q. Now, I observe on this chart at one point at one station the pressure was as low as .7 of an inch, and that at another point in the same district the pressure was as high as what, according to the recording gauges?

A. At the same time, at another point in the district, we had a pressure of 28½ tenths.

Q. That was about 6 P. M., that is more than that?

A. From 6:15 to 6:30.

Q. That is 29 tenths there, while it is 27 tenths here?

A. Yes. I read it here, it is a difference of half a tenth.

Q. That would be a difference of 22 tenths?

A. That is right.

Q. The broken lines here represent the pressures, do they not, at the various holder stations?

A. They represent the pressures at the various stations which supply the district.

Q. And it is so indicated in the schedule at the right?

A. It is.

6207 Q. Now, at 6 o'clock P. M. and thereabouts in the evening, is it not true that this chart shows that the company was outside the requirements of the law at both ends, or at some points in the district it was below one inch and at some other points it was above two and one-half inches?

A. Yes.

Mr. MATHEWSON: I offer that in evidence.

Chart received in evidence and marked Complainant's Exhibit 345.

Q. Now, will you produce the next one?

(Witness produces chart.)

Q. This profile which I show you is made up in the same manner which you have described for the previous one?

A. It is.

Q. And it shows the district supplied by the 44th Street station?

A. It does.

Q. That is service No. 6 (indicating)?

A. Yes, that is at a point in the district.

Q. I observe at 5 P. M. the pressure appears to be 43 tenths inches at one point and at the same time at another point it appears to be about 18½ tenths, does it not?

A. A trifle over 18, yes.

Q. Is there an even greater difference in that at 6 o'clock?

A. Yes.

Q. Where you have 44.1 tenths in one place and at another point it is only 14 tenths?

A. 14½ tenths.

Mr. MATHEWSON: I offer that in evidence.

Chart received in evidence and marked Complainant's Exhibit 346.

Q. Is this profile which you now produce for the territory supplied by the 42nd, 63rd and 65th Street stations?

A. Yes, sir, it is.

6208 Q. I observe here at a few minutes to 7 o'clock a pressure of 4.65 inches is reached?

A. That is correct.

Q. And at the same time there appears to be a pressure at another point as low as 1.4 inches?

A. Yes.

Q. So that in many cases on this chart there appears to be a much greater difference than 1.5 inches between different points at the same hour, does there not?

A. A very much greater difference. There is a difference of 3.2 inches in that one case that you referred to.

Mr. MATHEWSON: I offer that in evidence.

Chart received in evidence and marked Complainant's Exhibit 347.

Q. Now, this chart which you have now produced shows the territory supplied by the 14th Street station, does it not?

A. It does.

Q. And one service shows at a little after 5 o'clock, about twenty minutes after 5 o'clock, 4.7 inches pressure?

A. That is right.

Q. And at the same time another point in the system shows a pressure of 1.5 inches, does it not?

A. 1.6 inches at the same time; that 1.5 inches is a little bit later.

Q. But here also, is it not a fact, that for considerable periods there is a difference much greater than 1.5 inches?

A. There is a difference of over three inches in the case you cite.

Mr. MATHEWSON: I offer that chart in evidence.

Chart received in evidence and marked Complainant's Exhibit 348.

6209 Q. Mr. Edgerton testified in substance that every time there was a fall observed outside the testing point the pressure might be increased at the works or if a high pressure was observed it might be reduced at the works and thereby meet the requirements. Have you made profiles showing the rising or falling pressure at the same time?

A. I have made profiles showing the rising and falling pressures of the district gauges, without direct reference to the pressure maintained at the works.

Q. Will you produce those?

A. Yes.

(Witness produces charts.)

Q. They are made from the readings of the same kind of gauges, are they?

A. Yes, sir.

Q. Now, this which I show is headed, "District supplied by East

63rd Street station; pressure from 3 P. M. to 9 P. M., January 16, 1907"?

A. That is right.

Q. What is this left-hand point marked three hundred?

A. That is the hour that is 3:00.

Q. And the readings at the left represent pressures, do they?

A. Yes.

Q. Now, the pressure, according to this chart, does not rise evenly in all parts of the district at the same hour, does it?

A. It does not.

Q. In other words, the gauge at one point indicated by the green line of 311 East 72d Street appears to run substantially uniform?

A. With very slight variations.

Q. At the same time the pressure shown by the black line which is 408 East 63d Street, only nine blocks away, rises very rapidly?

A. It does.

Q. What is the pressure at seven o'clock, at the last point mentioned as indicated by the black line?

A. 5.9 inches.

Q. And what was the pressure at the same hour at 311
6210 East 72d Street, only nine blocks away?

A. 2.2 inches.

Q. And there you have more than the difference allowed by law of 1.5 inches pressure, have you not?

A. Very much.

Mr. MATHEWSON: I offer that in evidence.

Received in evidence and marked Complainant's Exhibit 349.

Mr. PAGE: Did you explain what the green line was?

Mr. MATHEWSON: That is the pressure at 311 East 72d Street as shown on the explanatory table at the upper left hand corner.

Q. Have you another one taken from another district?

A. Yes. (Producing chart).

Q. You now produce a chart headed districts supplied by 44th Street station showing certain pressure gauges?

A. I do.

Q. And the lines of those gauges at different hours from 3 to 9 P. M. are represented by the different colors, are they not, as indicated on the side?

A. They are.

Q. Well, in this case it appears, does it not, that say between 4:30 at 5 o'clock all the pressure at one of the points is rising rapidly, and it is falling at every other point of the four points?

A. That is correct, yes, sir.

Q. And does it not appear repeatedly that where it is rising at one point it is falling at another within this radius?

A. It does.

Q. And here, too, the range is considerable more than 1.5 at the same hour, is it not, in various instances?

A. It is over 2½ in one case and considerably over 1½ in every case with the exception of the lower three lins.

Mr. MATHEWSON: I offer that in evidence.

6211 Received in evidence and marked Complainant's Exhibit 350.

Q. The profile which you now show me is headed districts supplied from Inwood station and is made up on the same basis, is it not, as the previous two charts?

A. It is.

Q. And does this also show pressure rising at one point and falling at another on the same occasion?

A. Yes, it does.

Mr. MATHEWSON: I offer it in evidence.

Chart received in evidence and marked Complainant's Exhibit 351.

Q. Does it show a difference at the same hour of more than 1½ inches?

A. Yes, it does.

Q. Now, I will ask you, generally, whether it would be possible, therefore, to regulate the pressure at the station by the reading of pressure at any one point, so as to regulate the entire district?

Mr. KIRBY: I object to that. You have not shown the witness is qualified to answer.

Mr. MATHEWSON: He testified he has charge of the pressure under Mr. Simpson.

Mr. KIRBY: What does that mean? He is not an engineer.

Mr. MATHEWSON: I will ask a few questions on that.

Q. You have observed pressures, have you not, Mr. Fogg, for some years?

A. I have.

Q. Have you had charge of the pressure charts in these various districts, and have they been brought to you for checking?

A. They have.

Q. And have you been generally familiar with pressure at stations and pressures at various points in the district, as shown by the charts?

6212 A. I am familiar with the pressures at the stations, as shown by the charts, from having observed the charts and knowing that they are correct, knowing that they have been tested with the gauges, the water gauges.

Q. Then from your experience and observations, as plotted on these charts and otherwise, I will ask you whether, in your opinion, it is possible to regulate the pressure at the station as you find pressure at one point or another in your district going up or down, so as to affect the regulation for the entire district, within any special limits?

Mr. PAGE: Objected to on the ground that it is incompetent, immaterial and irrelevant. The witness's observation of charts does not make him an engineer.

Mr. BURR: I join in the objection. He does not appear to have knowledge about them.

The MASTER: You may cross-examine, gentlemen.

By Mr. KIRBY:

Q. Are you a graduate of any technical or scientific school?
A. I am not.
Q. Have you ever operated a gas works anywhere?
A. I have.
Q. Where?
A. Flushing, Long Island, Ocean City New Jersey, Yonkers, New York.
Q. What were your duties at such plants?
A. Superintendent at Flushing, engineer of works at Yonkers, and construction engineer at Ocean City, and later, when the plant was operated, its superintendent.
Q. When did you enter the employ of the Consolidated Gas Company?
A. In the early part of 1904.
Q. What were your duties at that time?
A. In 1904?
Q. Yes.

6213 A. At the beginning of my employment with the Consolidated Gas Company, I took charge of the construction of the 36-inch main between East 111th Street and West 136th Street, about which I have testified.

Q. Since then have you been engaged upon similar work for the company, laying of mains and such?
A. Not the construction of any mains since that time.
Q. Have you had any direct work in the operation of any plant?
A. By plant, do you refer to their manufacturing stations?
Q. Yes.
A. None.
Q. Have you ever had any direct work in relation to the regulation of pressure of the gas sent out either from their holder stations or manufacturing stations?
A. I have.
Q. What have you done?
A. I have had supervision of the pressure gauges maintained on the districts throughout the city and the men employed in caring for those gauges. I have, from time to time, as the pressure conditions varied, kept the chief engineer indirectly or through the general superintendent of mains informed as to any variations, so that the proper regulation at the works might be effected.
Q. Have you ever given any orders for the regulation of pressure at the works?
A. None whatever.
Q. Have you ever, in any way, had the pressure at the works changed?
A. None, except in the manner I have just testified. No one changes the orders as regards the pressure at the works except the chief engineer of the company.
Q. Then, I take it, that your work with the Consolidated Gas Company as having to do with pressures has simply been the read-

ings of the pressures and in the endeavor to see that they were taken in the proper way and with proper apparatus?

A. No, it has more to do with it than that. I have, from time to time, as the need became apparent, had additional gauges
6214 set out in the district, made as I saw——

Q. Then we will add to those duties the installation of gauges.

A. And their maintenance, yes, sir.

Mr. KIRBY: That is all. I contend, Mr. Master, that this witness has done nothing more than to check off readings and install pressure gauges and never changed or varied the pressure in any way at the various stations, and measured the results thereof, and the regulation has been in charge of another.

The MASTER: I will allow the question.

Mr. KIRBY: Exception.

Mr. BURR: Same objection and exception.

By Mr. MATHEWSON:

Q. You may answer the question now. (Question repeated as follows): Then from your experience and observation as plotted on these charts and otherwise, I will ask you whether in your opinion it is possible to regulate the pressure at the station as you find pressure at one point or another in your district going up or down so as to effect the regulation for the entire district within any special limit?

A. I do not consider it to be possible.

Mr. MATHEWSON: That is all at present.

Mr. KIRBY: What do you mean by at present?

Mr. MATHEWSON: I mean I may possibly recall any witness on another point, but I am through with this.

Cross-examination by Mr. KIRBY:

Q. Referring to Complainant's Exhibit 325, I notice in the upper right hand corner thereof a plotting of a section of the city.
6215 From what source did you obtain the map I have just referred to?

A. The skeleton outline?

Q. Yes?

A. That is a reduction of any one of the standard maps we have in our office; I don't know which one. It is not to scale and no effort has been made to put it to scale.

Q. Was it taken from any exhibit in this case?

A. The outline of the map? No, not that I can recall.

Mr. MATHEWSON: It is merely to locate the place where these gauges are located by general description so he can identify them.

The WITNESS: Referring to the outline, but not to the figures appearing on it.

Mr. MATHEWSON: Yes.

Q. I notice set down in the spaces indicating streets certain lines having colors of orange, yellow, purple and green, and by reference

to a key, that these represent different sizes of main. From what source did you get the information that mains of these sizes were upon these various streets and laid in the manner here set down?

A. From our own street mains record.

Q. From any exhibit in this case?

A. No.

Q. I notice the statement upon this exhibit as follows: "Territory supplied by 99th Street, 111th Street and 132d Street stations." From what source did you get that information?

A. From my own knowledge of the condition of the street mains in that section of the city.

Q. Are you prepared to state that this territory and none other is supplied by these stations?

A. There may be one or two connections at the lower end of the district which dovetail into another section.

6216 Q. Are you prepared to state whether or not any other stations supply any other part of this territory?

A. No other stations supply any part of that territory, except the statement that I just made, at the lower end of the district where several mains may overlap into this district. That would apply only to the lower part of the dis-rict.

Q. What do you mean by supplying territory from a certain station?

A. Are you speaking in the case of the three stations there, or any one of them?

Q. I speak with special reference to the chart, Complainant's Exhibit 345.

A. That would involve taking into consideration all the stations. We cannot draw the line between the territory supplied by any one of them in any case, because the main system is tied together all through.

Q. Which station supplies the more northerly section of this territory?

A. Above what streets?

Q. Above 170th Street.

A. The territory is supplied by 132d Street. The regulation of pressure is effected from the Inwood station, however, from the governor located at that point.

Q. How is that done?

A. The gas is sent to the Inwood governor by means of a transfer main and enters the governor at that point at Inwood, and goes out onto the district after being regulated by the Inwood governor.

Q. Does any other gas pass through that governor *at* except that which comes from the 99th Street station?

A. No gas directly from the 99th Street station goes through that governor.

Q. I mean the 132d Street station, the station to which you just made reference as having a main running to the Inwood governor, and the gas passing through that governor and supplying the more northerly section of this territory?

A. No.

6217 Q. Quite sure of that?

A. Reasonably so, from my knowledge of the main system and the records.

Q. What territory is supplied from the Inwood station?

A. None from the Inwood station itself; the territory that we are just speaking of, the pressure regulation is effected at the Inwood station. It is not a manufacturing station, it is merely a holder point.

Q. There is a holder at Inwood, is there not?

A. I have seen an old holder frame there; I don't know whether the holder is in the tank or not. I have not had occasion to be in the station.

Q. You are familiar with all this territory, you have stated, and with the distribution of gas therein?

A. As regards the street mains, yes, sir.

Q. But you don't know anything about where the gas comes from which goes through those mains?

A. From the 132d Street station, and I have so testified.

Q. But you are not prepared to state whether there is any gas going into any territory from the holder at Inwood?

A. I don't know what may have been done with the holder at Inwood, I don't know that any gas is in it, or has gone through it.

Q. I refer you to Complainant's Exhibit 351, which has printed thereon "districts supplied from Inwood station," what does that mean?

A. That refers to the district supplied from Inwood station, not by it.

Q. Well, what does it mean?

A. It means that the pressure regulation on the points shown in the profile lines there is effected by the governor at Inwood station.

Q. Do you know where that gas comes from?

A. From the 132nd Street station.

Q. None from Inwood at all?

A. None that I know of from Inwood.

6218 Mr. BURR: I note on this map at the bottom it says red figures in district sk[illegible] show elevation above mean high water. Where are the red fi[illegible]s?

Mr. MATHEWSON: That is in the sketch on the map above, in the upper right hand corner.

The WITNESS: It is possible that they have been omitted. They have been in this case, they are on the originals.

Mr. MATHEWSON: We will supply them. They would not show on the blue print, but we will put them in for you.

Q. Now, referring for a moment to Complainant's Exhibit 347, which has printed thereon, "territory supplied by the 42nd, 63rd and 65th Street stations," I ask if that street given as 79th Street is between the same avenues as 79th Street set down upon Complainant's Exhibit 345?

A. 79th Street, as shown there on Exhibit 347, is between 5th Avenue and the East River.

Q. While 79th Street, as shown on Exhibit 345, is between the same boundaries?

A. The same boundaries.

Q. Now, being familiar with the mains as they are laid, I ask if you will tell us what happens to the mains from either 42nd, 63rd or 65th Street stations when they get to 79th Street between 5th Avenue and the river? Do they stop?

A. No, they do not stop.

Q. Do they go on?

A. Yes, as mains. As conductors, I doubt if they do.

Q. As mains do they go on?

A. As a metallic structure, they do.

Q. Is there any dividing territory between that and the territory supplied by the 99th, 111th and 132nd Street stations, as set
6219 down on Complainant's Exhibit 345?

A. The boundary is shown, which is 79th Street, on that side, the dividing line.

Q. The mains go on? What do you mean by the dividing line?

A. A valve in the main itself.

Q. Is there a valve there which shuts off the gas of one territory from the gas in another?

A. I don't know in what condition those valves are. There are valves there.

Q. Are they closed?

A. I don't know in what condition the valves are.

Q. Well, you are familiar with all of this territory and with all these mains and with all the pressure gauges distributed throughout the territory. Did you ever look as to whether those valves are open or shut?

A. Only when I have had occasion to do so for some particular reason.

Q. Have you had occasion to do so while you were making up these charts or taking these readings to make them up from?

A. No.

Q. Do I understand you to state that on each main as it runs from one of these territories indicated on any one of these exhibits into another territory indicated on another exhibit that there is a valve to close off the gas in that main from the adjoining territory?

A. I would not attempt to say that there was a valve on every main anywhere. It is quite impossible for me to even assume that there was. I know the general division of that side of the city is effected at 79th Street.

Q. Or at any other street? Did you lay any of these mains yourself?

A. None.

Q. Have you made excavations for the purpose of repairing or renewing?

A. I have at times inspected mains in excavations made for that purpose, yes.

Q. Have you ever put any valves down or in?

A. Personally, no.

6220 Q. Under your supervision have any been installed?

A. Not under my supervision.

Q. Now, again referring to Complainant's Exhibit 345, and looking at these designations of various sized mains, which you have

laid down upon the map in this territory, are you prepared to state that these are the only mains in this territory?

A. I am prepared to state that they are not the only mains in the territory. We made no attempt to put all the mains on those maps and the only object of putting the mains on the map is to give a general idea from what station the territory is supplied, and the larger or trunk mains leading into the districts; the mains are not complete and were not intended to be so.

Q. Upon Complainant's Exhibit 345 I note a small oblong hatching marked 1, and by reference to the index I see that is set down as 111th Street station; am I right in stating that on the date of January 16th, 1907, you took certain readings at that station?

A. No, I did not take any readings myself at that station; readings are taken every day at that station.

Q. By whom are they taken?

A. By the works' employés.

Q. Do you know who they were taken by on this day?

A. They are taken under the direction of a Mr. Barlow.

Mr. MATHEWSON: They are taken on the regular recording automatic gauges.

The WITNESS: And removed every day.

Mr. MATHEWSON: And as I said a few minutes ago, I have the men here and the original charts here if you wish to assure yourself on this point. I did not put them on because Mr. Fogg had general knowledge of it, but I will put them on if you wish.

6221 & 6222

Q. Have you any personal knowledge as to whether or not that gauge was registering properly on that day?

A. I have no personal knowledge, except that I have been told that it was.

Q. Do you know whether it has been checked by anybody?

A. I do know that it has been, yes.

Q. By whom?

A. The man removing the chart.

Q. How did he check it?

A. Comparing it with the water gauge, siphon gauge.

Q. How many times a day did he check it?

A. He checked it once a day.

Q. What kind of a pressure gauge is this that was used to take these readings?

A. A Bristol recording pressure gauge.

Q. And will you describe to us what the general character of such apparatus is?

The MASTER: Gentlemen, you will have to excuse me, we will have to suspend here now.

At 1 P. M. adjourned to Saturday, January 26th, 1907, at 11 A. M.

Last Exhibits:

Last Complainant's Exhibit, 351.
Last State's Exhibit, OOO.
Last City's Exhibit, 236.

6223 Circuit Court of the United States, Southern District of New York.

CONSOLIDATED GAS COMPANY OF NEW YORK, Complainant,

vs.

JULIUS M. MAYER, as Attorney General of the State of New York; WILLIAM TRAVERS JEROME, as District Attorney of New York County; FREDERICK E. GUNNISON, JOHN C. DAVIES, and LUCIAN L. SHEDDEN, Constituting the New York State Commission of Gas and Electricity, and THE CITY OF NEW YORK, Defendants.

Before Arthur H. Masten, Special Master.

NEW YORK, *January* 26, 1907—11 A. M.

Met pursuant to adjournment.

Present: The Master, Mr. Mathewson, Mr. Burr, Mr. Kirby, Mr. Page.

6224 OSCAR H. FOGG resumes the stand and further testifies:

Cross-examination by Mr. KIRBY (resumed):

Q. I call your attention to Complainant's Exhibit 345, the chart which we were looking at yesterday afternoon when we adjourned. The line upon this chart showing the maximum reading of pressure is taken at the Inwood station, according to the reference table. Will you inform me just where at the Inwood station that pressure is taken?

A. You say the maximum line on the chart is taken at Inwood?

Q. Yes.

A. I do not think that is the case, Mr. Kirby.

Mr. MATHEWSON: That is 132d Street.

The WITNESS: The Inwood station is down here (indicating).

Q. Very good. Now, we will take the line——

A. These colors on the prints are rather misleading.

Q. You see on the chart here the line instead of being broken with a long and then a short line is chopped up so that it is almost impossible to ascertain what it is?

A. On account of the short turns.

Q. Very good. We have this line. The line which on the left-hand side of the chart starts at the reading, 2.2 inches?

A. Yes, sir.

Q. And continues across the chart, ending on the righthand side of 2.25 inches, is that correct?

A. That is correct.

Q. That is the line indicating the pressure reading at the Inwood station?

A. Yes, sir.

Q. Will you inform me where at the Inwood station that reading was taken?

A. The reading was taken at the outlet of the governor, at
6225 the point where the gas passes into the main system of that district.

Q. And you stated yesterday that the gas was brought to Inwood from where?

A. 132d Street station.

Q. How was it taken to Inwood?

A. By means of a twenty inch transfer line.

Q. That is, a main running from 132d Street to Inwood, twenty inches in size. Now, from this twenty inch main are there any transverse mains or services taken; is any gas taken from that main before it reaches the Inwood station?

A. None whatever, that I know of. That main is known as a transfer main for the sole purpose of carrying gas from the 132d Street station to Inwood.

Q. Is there any line upon this chart indicating the pressure in that main?

A. No, sir; no line on the chart showing that pressure at all.

Q. The pressure indicated at the 132d Street station is different from that in this main running to Inwood?

A. The pressure indicated at the 132d Street station in which main?

Q. In any main laid down upon this chart?

A. Oh, yes, yes.

Q. Now, do you know the pressure in that main?

A. I know it is about seven or eight inches.

By Mr. MATHEWSON:

Q. That is in the main from 132d Street to Inwood?

A. The transfer main to the Inwood station.

By Mr. KIRBY:

Q. That is not on this chart?

A. No pressure of transfer mains shown on the chart at all, no.

Q. When that gas reaches Inwood, it there passes through a gov-
ernor, its pressure is reduced, and the line which we have
6226 spoken of on this chart shows the readings of pressure on the side of the governor from which the gas leaves it to go to the territory supplied from Inwood?

A. That is right, yes, sir.

Q. Let us look at point 5, being 175th Street and Boulevard Lafayette, indicated upon the diagram by a green line. Is point 5 supplied from the governor at Inwood?

A. No, not entirely.

Q. What is it supplied from?

A. As I have before testified, it is impossible to say in that district the pressure entirely supplied by any one particular station, inasmuch as there are three stations, and one governor station, which play into the combined main system of that district.

Q. Now, you have just testified that the main running from 132d Street to Inwood has no gas taken therefrom until it reaches Inwood. What other main is there that would run to point 5?

A. None that would run direct to point 5. There is, however, a main leaving the 132d Street station known as a district feeder, a main thirty inches in diameter, which connects into the general distribution system at 129th Street and Amsterdam Avenue. From this point of connection there is a main north in Amsterdam Avenue tying into the various distribution mains at various points north and south, which would in a measure affect the pressure at 175th Street and Boulevard Lafayette; to just what extent that particular main would affect that pressure I am not prepared to say.

Q. Are there any points where pressures were taken and laid down upon this chart which might draw their gas from this main to which you have just made reference, from points other than point 5?

A. No, not directly. That main affects the entire distribution system in that district.

Q. Would it affect point 11, being 185th Street and Port
6227 Washington Avenue?

A. That I do not believe anybody knows definitely. It would be quite impossible to state.

Q. Now, if we should raise the pressure at Inwood station at its maximum point, which is now, as set down upon this diagram, 3.2 inches, to 4½ inches, or between 4½ inches and 5 inches, what effect would it have upon the pressure at the same moment at points 5 and 11?

Mr. MATHEWSON: Are you referring to the green line?

Mr. KIRBY: Yes.

Mr. MATHEWSON: That is 3.4 inches, not 3.2.

Mr. KIRBY: I am referring to Inwood.

A. You asked me what the effect would be upon the pressure at this point, 176th Street and Boulevard Lafayette? It is my judgment that the pressure at that point would be increased to some extent.

By Mr. MATHEWSON:

Q. If what?

A. If the line indicated by Mr. Kirby representing the Inwood pressure, at the outlet of the governor were increased to a point between 4½ and 5 inches.

By Mr. KIRBY:

Q. And it would be possible to increase the pressure at the Inwood station so as to bring that down higher than 1 inch and not to permit it to go higher than 2½ inches, would it not?

A. It might have that effect, not considering the effect that it would have upon the other pressures in that district. There undoubtedly would be a relative increase in all the other pressures, some of which are already up to 2½ inches and some over.

6228 Q. Point out to me one that is above 2½.

A. Right there (indicating on chart).

Q. Which line did you indicate?

A. I indicated the red line which indicates the pressure on Bolton Road.

Q. At point 6?
A. Point 6.
Q. Where does point 6 get its supply from?
A. Point 6 is north of the Inwood governor station, and I think it is perfectly safe to assume that the pressure regulation at that point is effected by the Inwood governor station.
Q. Does it obtain its supply from any other point than the Inwood station?
A. That again would be impossible to answer. Its supply, as I have already said, comes from the station at 132d Street. Its pressure regulation, I believe, would be entirely effected by the regulation at the Inwood station.
Q. So that if the main running to point 6, being Bolton Road, had a governor thereon which would not prevent the pressure rising above 2½ inches, at no time could the pressure at point 6 be above 2½ inches, could it?
A. If there were a governor upon that main, and that main was supplying only the one point or the one immediate section referred to by you, the governor could be so set that the pressure would not go beyond any given point.
Q. And you have testified that you had information and knowledge that this main does only supply that section, and does only come from the Inwood station, so that you could govern that section in that way, could you not?
A. I am referring now to the one main supply up there, No. 6, particularly.
Q. So am I. Now, will you tell me where the pressure reading was taken at this point 6; was it directly upon the main?
A. No, it was not on the main. The gauge in that case is
6229 attached to the head of the service, or at a point before the gas reaches the consumer's meter inside the house.
Q. What was the size of the main at this point?
A. That I could not tell definitely without referring to the record.
Q. What size would you think?
A. I would not be able from the conditions—I should imagine it might be a six inch main or an eight inch, but that is something at which I could not more than guess.
Q. Was it the main from which the service pipes in that district were drawn?
A. It was.
Q. And to which the service pipes were attached?
A. Yes, sir.
Q. The reading at 111th Street, being point 1, was taken where?
A. That gauge is attached to the outlet main from the station at the point where it connects into the distribution system.
Q. Any services attached to that main?
A. To the main at the point where this reading is shown?
Q. Yes.
A. Oh, no, that is the works' pressure.
Q. Where was the reading taken at 99th Street?

Mr. MATHEWSON: All those are station pressures.

A. The same point.
Q. Those services attach to the mains at this point?
A. Yes, that is inside the building (indicating the works' pressure line on the chart).

Mr. MATHEWSON: Those pressures are station pressures without services attached. All the others on the chart are the service pressures.

Q. And that is also true at Inwood, except that these taken at the governor point, such as you have already testified to?
A. Yes, sir.
Q. Where was the reading taken at 132d Street?
A. At the same point inside the building.
6230 Q. Where was the gas coming from which entered this main upon which the pressure was taken?
A. At which point?
Q. 132d Street.
A. That I cannot tell at all. It might have been coming from any one of the stations of the Consolidated Gas Company.
Q. Was it coming from the holders at that station?
A. Oh, yes.
Q. How many holders are there?
A. One holder of the Consolidated Gas Company.
Q. Another holder of the Standard Gas Company?
A. I believe so.
Q. Are you prepared to state that the gas entering this main came alone from the holder of the Consolidated Gas Company?
A. No, I am not.
Q. This is the point where the gas from the Standard Gas Company feeds into the mains of the Consolidated, is it not?
A. Where the gas of the Standard Gas Company feeds into the mains of the Consolidated?
Q. Of the Consolidated?
A. They may.
Q. Don't you know?
A. I do not.
Q. I refer you to the testimony of Simpson, 205, where he states:
"Q. You have been referred to as the authority as to where the gas was delivered, from the various subsidiary companies, into the mains of the Consolidated Gas Company. Can you tell me where those gas connections are between the mains of the Standard and the mains of the Consolidated Gas Company? A. Yes. Q. Where are they? A. The principal connections at 132d Street and Broadway; there the Standard delivers gas into our 30-inch main; also into a 20-inch main going to Inwood, and at 125th Street and Fifth Avenue; and at 125th Street and Eighth Avenue, through
6231 our connections between the New Amsterdam mains and the Consolidated mains, for the purpose of reinforcing the New Amsterdam pressure."
Does that refresh your recollection in any particular?

Mr. MATHEWSON: If Mr. Simpson so testified it probably is the case. It probably won't refresh his recollection though.

A. It don't refresh my recollection at all, because I have no knowledge on the subject. If Mr. Simpson has so testified it is undoubtedly correct.

Q. Then, as a matter of fact, you don't know that the gas, the pressures of which you have taken at the various points in this district, is not part of the gas coming from the holder of the Consolidated or the holder of the Standard Gas Company?

A. I would have no reason for knowing that at all.

Q. But you are familiar with how the regulation of pressure is attempted to be effected?

A. I am, yes, sir.

Q. And expressed an opinion as to whether or not it could be so regulated as to keep the pressures within the limits of 1 and 2½ inches?

A. Yes.

Q. Have you ever made any attempts at the 132d Street station to regulate the pressure from the Consolidated Gas Company or the pressure coming from the holder of the Standard Gas Company?

A. I already testified that I have made no attempts to regulate the pressure at any one of the stations; that that is entirely within the jurisdiction of the chief engineer and he alone gives orders for the regulation of the works' pressures.

Mr. MATHEWSON: Mr. Fogg testified he gave the chief engineer the charts and kept him informed of the pressures generally
6232 in the district, for the chief engineer's information.

Mr. KIRBY: He was quite willing to express an opinion thereon, as to what could be done.

Mr. MATHEWSON: Of course, he is.

Mr. KIRBY: We are trying to find out how much weight that opinion should have given to it.

Q. Are you familiar with the interior of the 132d Street station so as to know the means used therein to turn the gas from the holder of the Standard Gas Company into the mains of the Consolidated?

A. I am not.

Q. Have they what might be called a switchboard there for that purpose?

A. Not that I know of.

Q. You took readings at point 5 of which we have already spoken. To what was the pressure gauge connected at this point?

A. At that point the pressure gauge is connected to a ¾-inch pipe which is extended from the service at a point before it reaches the consumer's meter.

Q. And do you know the size of the main to which that was connected?

A. 6-inch main.

Q. And were there other services taken off from that main?

A. Yes.

Q. Do you know the consumption of gas in that locality?

A. No.

Q. Do you know the number of cubic feet of gas which passes through a 6-inch main each twenty-four hours?

A. No.

Q. Do you know the carrying capacity of that main?

A. Under what particular conditions?

Q. Under the conditions which are expressed upon that chart?

A. That would have to be determined by the drop in pressure in a given length of pipe.

6233 Q. Could you tell me the carrying capacity of a main of definite size under a definite pressure for a definite distance?

A. I could calculate it, yes.

Q. Being able to calculate that, could you tell me what the carrying capacity would be of a main of twice the diameter under the same conditions?

A. By calculating in the same way.

Q. Does that carrying capacity increase directly as the diameter or the square thereof?

A. It increases as the square of the diameter, 1-5 power of the square of the diameter.

Q. That is a little more than the square?

A. A little bit more. I would like to correct that answer. That is rather confused. It increases as the square root of the 5th power of the diameter. I have not had occasion to refer to the formula. I have calculated tables which we use almost altogether in the place of the formula nowadays.

Q. If a main of larger diameter than that which now supplies point 5 were put down and that main had supplied to it, or could have supplied to it, gas at the same rate per cubic feet of area as the main which now supplies point 5, do you or do you not consider that the pressure at point 5 would be less likely to fluctuations than it is at the present time, as indicated by this chart?

A. No, I do not believe it would be.

Q. In other words, it would make no difference how large a quantity of gas point 5 would have to draw upon, the pressure would fluctuate as you indicated by the diagram?

A. It would depend entirely upon the initial pressures maintained.

Q. We will assume the same initial pressure is maintained and assume it has more than four times the capacity of gas to draw upon.

A. It might reduce the variations at that particular point.

Q. It would, wouldn't it?

A. I think it would, yes. It might.

6234 Q. But wouldn't it?

A. I believe it would. I think it would.

Q. Now, let us take point 7, 533 Lenox Avenue, upon what kind of a pipe were the readings taken at that point?

A. What size?

Q. Size? Was it a service pipe it was taken on?

A. The reading was taken directly from the head of the service before it entered the consumer's meter.

Q. To what size service main was this service attached?

A. I don't know.

Q. What size do you think?
A. I don't know.
Q. Other services were taken from this pipe?
A. Yes, sir.
Q. Do you know the size of the transfer main or supply which supplies that district or trunk main or whatever you call it—I don't know how to designate it—in your company?
A. It would not be a transfer main.
Q. What type of trunk main or a supply main?
A. Yes. And there are several leading into the district from various stations.
Q. And you don't know their sizes?
A. Oh, yes, I know their sizes. The main from the East 111th Street station is a 36-inch; the main from 132d Street, as already testified, is 30-inch, leading to the point where it connects into the distribution system.
Q. Now, do you know how many cubic feet of gas per day are drawn from the service mains supplying this district, compared to the number of cubic feet which are drawn from the service mains supplying point 6?
A. I do not.
Q. Have you ever calculated the volume of gas which is delivered or could be delivered during 24 hours to any one of the points outside of the stations where you have taken readings as set down upon this chart, Complainant's Exhibit 345?
A. I have not.
6235 Q. Have you ever done that for any point or section of the city?
A. No, I have never had occasion to.
Q. Have you ever taken a point where your readings have shown that there has been no variations below the maximum of 2½ inches or below the minimum of one inch, calculated the volume of gas which was delivered to that point during any 24 hours, the diameter or carrying capacity of the mains, including trunk mains, service mains or whatever mains went to that point, and compared the result with the amount of gas and the size of pipe which would be delivered or ran to a point where the variations showed a maximum of over 2½ inch and minimum of less than one inch.
A. I have not.
Q. Now, will you take the chart of which you have the original, which is more easily read than the others, and point out to me the points where the readings were taken, where the pressure during the 24 hours at no time went up to 2½ inches and at no time fell below 1 inch?
A. The point at 38 West 125th Street shown by the yellow line, point No. 10.
Q. Is that the only one?
A. The point at 533 Lenox Avenue, No. 7, that is a brown line.
Q. Any other?
A. No; I don't see any others.
Q. The point 11, being 185th Street and Fort Washington Ave-

nue, I presume obtained its gas from the same source as point 6, being on Bolton Road, did it not?

A. Yes sir,

Q. The point 9, 1911 Amsterdam Avenue, indicated by the blue line, obtained its gas from what source?

A. From the 132d Street station.

Q. Show me the blue line on this, will you? I cannot make out the difference?

A. Here it is (indicating on chart).

Q. And the ranges are of tremendous variation, are the readings at the station, the large line going as high as 6.9 inches,
6236 and the line reading maximum, 4.1 inch and a line reading maximum of 3.4 and the purple line of the Inwood station to which you have already made reference, reading maximum 3.2?

A. Those were the works' pressures, yes, sir.

By Mr. MATHEWSON:

Q. Those are the pressures, are they not, on the distribution mains from which services are taken off somewhere away from the station?

A. The high pressures.

Q. Station pressures on the transfer mains?

A. Oh, not the transfer mains, no.

Mr. KIRBY: Mr. Fogg testified he made no readings of the transfer mains running from 132d Street to Inwood.

Mr. MATHEWSON: So I understood; or on any of the transfer mains.

Mr. KIRBY: Well, I don't know. There is none on this chart.

By Mr. KIRBY:

Q. By backing on the service mains you mean that is the initial pressure at which the gas leaves either here from a holder or from the holder station at Inwood?

A. That is the initial pressure at which the gas enters the distribution mains.

Q. Now, take Complainant's Exhibit 346. Looking at the territory plotted out on the upper right hand side of this chart, I notice that the mains from the 44th Street works run over as close to 14th Street and the East River, where the 14th Street station of the Consolidated Gas Company is located, as Third Avenue; do you know whether or not there are any mains which were not closer to that station than the yellow line indicated upon this map?

A. There may possibly be a connection to it at that point.
6237 My impression is that there is no main supplied by 44th Street station east of Second Avenue, so that quite likely there is a connection east of that point you speak of as far as Second Avenue.

Q. Do the mains or any other pipes, whatever you may call them, from the 14th Street station, interlock with those from the 44th Street station?

A. There are connections at points, yes.

Q. Can you indicate those points?

A. No, not definitely on this outline.

Q. On Complainant's Exhibit 348, giving the territory stated to be supplied from the 14th Street station, certain readings were taken at point No. 7, being 609 East 14th Street. On Complainant's Exhibit 346 certain readings were taken as to point designated on such exhibit as point 5, being 4 Irving Place. If point 7 on Exhibit 348 had been supplied from the 44th Street station as point 5 (No. 4 Irving Place) was supplied, is it your opinion that the variations in pressure at point 7 on Exhibit 348 would be any different or materially different from the variations at point 5 on Exhibit 346?

A. Assuming that the main system be extended to the point 609 East 14th Street?

Q. Yes, assuming that.

A. Yes, I think you would naturally assume that the pressure at 609 East 14th Street, then being farther removed from the point of supply or the works will be lower than it is at the present time, where it is directly outside of or within a short distance of the point of supply.

Q. The short distance of the point of supply being the distance from Irving Place to Tenth Avenue and 44th Street?

A. Yes.

Q. Point No. 5 (Irving Place) is supplied from Tenth Avenue and 44th Street, according to your chart, Complainant's Exhibit 346?

A. Yes; that's right.

6238 Q. No. 7 on Complainant's Exhibit 348, being 609 East 14th Street, is supplied, according to Complainant's Exhibit 346, from the 14th Street plant?

A. Yes, sir.

Q. Being 14th Street and the East River?

A. Right next to it, in fact.

Q. Now, I ask if 609 East 14th Street was supplied from the 44th Street works the same as No. 4 Irving Place is, whether or not it is your opinion that the variations in pressure at 609 East 14th Street would not be very close and similar to those now indicated by you at No. 4 Irving Place?

A. And I replied that I would naturally assume that inasmuch as point 609 East 14th Street would, after the main system had been extended, be at a greater distance—the point would be at a greater distance from the source of supply, that the variations might be greater.

Q. The difference in distance of 609 East 14th Street from 44th Street and Tenth Avenue, and No. 4 Irving Place from 44th Street and Tenth Avenue, would be but a very small amount, would it not?

A. 609 East 14th Street, I should assume about ¾—possibly a mile from 4 Irving Place, Second to Third Avenue, First to Second, Third to Irving Place, possibly a mile. I think I might say about ¾ of a mile, in my judgment.

Q. How far is No. 4 Irving Place from the works from which it obtains its gas, the trunk main from which it obtains its gas?

A. Thirty blocks north and south and practically the full width of Manhattan at that point.

Q. Does that trunk main run down Third Avenue?

A. There is a trunk main down Third Avenue, yes.

Q. Is that the trunk main which supplies No. 4 Irving Place?

A. Some connection from that main.

6239 Q. Is there a connection to any other trunk main supplying Irving Place?

A. Not from that system that I know of.

Q. So that the distance from 609 East 14th Street would be from Third Avenue and not from Irving Place?

A. Yes, it would; the connection from the trunk main. You have referred, however, to variations in pressure between Irving Place and the point mentioned.

Q. Quite so, and you have replied by taking the main distance of 609 East 14th Street as compared with No. 4 Irving Place?

A. Yes.

Mr. MATHEWSON: The distance is not very appreciable.

Q. And No. 4 Irving Place has to go to Third Avenue before it taps a trunk main?

A. A short block, yes.

Q. Your readings at 487 Broadway, being point 2, were taken from a service?

A. They were.

Q. At what point on that service?

A. At the head of the service before it enters the meter. All our gauges are so located.

Q. Do you know the size of the service main to which this service was connected?

A. I do not.

Q. Do you know the size of the trunk main to which the service mains was connected?

A. No, I do not.

Q. Where was the reading, No. 5 Second Avenue, being point 3, taken?

A. The gauge was attached to the head of the service.

Q. I presume that all of these readings then were taken at the head of the service before the gas entered the meter?

A. That is correct.

Q. And were the meters in all instances upon the ground floor or in the basement?

A. They were.

Q. And there was no separate service isolated for the pur-

6240 pose of taking these readings, was there?

A. No service isolated especially for that reason, no.

Q. Now, were these various places houses or stores or what?

A. Both. Some apartments, some stores; the basements of large stores in some cases.

Q. During these readings did you take care to see that no gas was being used by the occupants of those stores or apartments or houses?

A. Oh, no.

Q. So that this indicates the pressure in the gas which was flowing through the meters and not through the house and being burned according as the desires of the occupants of the building demanded?

A. That indicates the pressure at the head of the service before it enters the consumer's meter which I think is a very close indication of the conditions of the service mains.

Q. Did you make any readings at identical times to ascertain what change might be made in the pressure owing to the consumption of gas in the particular apartment or store or house, upon the service of which you had your pressure gauge?

A. Throughout the apartment, throughout the building?

Q. Yes.

A. I have never done so.

Q. Now, point 6 is 317 West 42d Street. That is very close to the gasworks, is it not?

A. It is within a comparatively short distance of the gas-works. It is between Eighth and Ninth Avenues in 42d Street and the gas-works are located at 44th Street and Tenth Avenue.

Q. There are other works at 42d Street, are there not?

A. The 42d Street station.

Q. And gas is delivered from the 42d Street station, is it not?

A. Yes.

Q. Do you know whether or not the gas delivered from the 42d Street station runs through mains which are at given points connected with or interlocked with the mains from the 44th Street station?

A. There are connections undoubtedly very often inserted
6241 so that in the event of its becoming desirable at any time the gas of one station could be turned into the mains of another where they are within the same general locality—the same general district.

Q. Do you know whether or not those valves are closed or were closed on the 16th day of January, 1907?

A. I know that their normal condition is closed and I know of no special case or no special reason for them having been opened since that date. They are supposed to be closed. I believe they are.

Q. Have you any record, or are you familiar with any record which would show on which days they were closed or were open?

A. I am.

Q. Can you tell me whether they were open at any time during the year 1906?

A. Not without looking it up.

Q. Can you tell me whether they were open on the 17th of January, 1907?

A. I am quite positive that they were not.

Q. Are you positive they were closed on the 16th day of January, 1907?

A. Equally so, I say I know of no special emergency whatever that would require their having been opened.

Q. The pressure from the works at 42d Street is not as great as that from the works at 44th Street, is it?

A. No, it is not.

Q. So that if point 6, 317 West 42d Street, had been supplied from the 42d Street works, the maximum pressure registered at that point would have been less than was as registered upon this chart, Plaintiff's Exhibit 346, would it not?

A. I can't answer that without referring to the other profile.

Mr. MATHEWSON: It would be nearer 42d Street station than to 44th. You would have to account for that proposition.

Mr. KIRBY: About one block.

Mr. MATHEWSON: Yes.

6242 A. I believe there would be a very slight difference in pressure if that were done.

Q. And a decrease in the maximum?

A. A very slight decrease. A difference of .2 between district pressure and works pressure at that time, five o'clock, the maximum.

Q. Do you know the average size of the service main at which the services going to point 6 of Exhibit 346 was attached?

A. 16-inch main.

Q. And is 16-inches the usual size of your service main?

A. There are a great many mains, service mains, possibly not above 16 inches in diameter, but it is not an unusual condition at all.

Q. How long is that 16-inch main? Starting at the works I presume it runs to what point?

A. My recollection of that 16-inch main is that it starts at the works and runs down to either Tenth or Eleventh Avenues and east on the north side of 42d Street.

Q. And through 42d Street to what point?

A. It continues right east in 42d Street I think to Lexington Avenue or Third Avenue.

Q. And then down Third Avenue?

A. It connects into a main that is running down Third Avenue, possibly. I am not sure that it does continue to Third Avenue. If it does continue it evidently connects into the 16-inch main which runs down Third Avenue.

Q. And there is no smaller main upon 42d Street?

A. Yes.

Q. From which the services were taken?

A. Of that station?

Q. I mean from this station?

A. The point supplied from that station? That I don't know. I am not sure.

Q. In other words, it is your impression that you connect your services all into this 16-inch main which runs across 42d
6243 Street to Third Avenue, and then goes into a main of the same size running down Third Avenue?

A. I know we connect our services into it; the mains generally on the chart are connected into it so it is therefore a service main.

Q. Do you know of any other mains from those works connecting into the 16-inch main on Third Avenue?

A. I believe there is another main going east in 46th Street from

the works which connects into the same 16-inch main at Third Avenue.

Q. The size of that main running through 46th Street is what?

A. 30 inches.

Mr. MATHEWSON: He said he wasn't sure that this did connect with the Third Avenue main.

Q. It appears by Exhibit 346 as 12 inch; which is correct?

A. You have asked me about——

Q. I am not sure about this—I am not trying to mislead you at all. Is that black (indicating); is that 30 inch?

A. That is black.

Q. Is that black?

A. That is black, yes.

Q. Then your impression is that there are two mains running from the 44th Street works across to Third Avenue; a 30-inch main through 46th Street and a 16-inch main through 42d Street?

A. Yes, sir.

Q. And this 16-inch through 42d Street had directly connected to it the services upon which you took the readings of point 6, being 317 West 42d Street?

A. Yes, sir. Regular service main, service connected to it at that point.

Q. Now, will you take the pressure as given at point 5, being 4 Irving Place, and tell me if I am right in stating whether the maximum of that reading is 2.6 inches.

A. You are right, yes.

Q. And that if that maximum point were brought down to 2½ inches the minimum would then be as high as 1.9 inches?

A. It is impossible to state that. The maximum that you
6244 refer to is during the hours of least consumption, it is only for a momentary peak, and the minimum you refer to is the lighting hour.

Q. But if there were a general reduction of the pressure taken at this point of .1 of an inch the maximum would be 2½ and the minimum 1.9, would it not?

Mr. MATHEWSON: If you are assuming the reduction would be uniform all the way through after you reduce the pressure at any single point——

Mr. KIRBY: I am.

A. Assuming that, yes.

Q. And we will take point 2, 487 Broadway, indicated by the blue line, I find the maximum for that is 2.2 inches?

A. Yes, sir. No, I guess we were higher than that there.

Q. It is 2.4?

A. Yes.

Q. And the minimum for that is 1.45 inches, so that if you drop the minimum reading at point 2, 487 Broadway, down 1-10th of an inch, that reading would still be as high as 1.35, would it not?

A. If you drop this peak only.

By Mr. MATHEWSON:

Q. What peak?
A. (No answer).

Mr. KIRBY:

Q. If you drop the peak indicating the minimum reading at Broadway during the 24 hours, at No. 487 Broadway, being point 2 upon Complainant's Exhibit 346?
A. The pressure would then be 1.35 inches.

6245 Q. If we take point 3, being No. 5 Second Avenue, indicated by the green line, we find the highest pressure during the 24 hours is 2.25 inches?
A. That's right; yes, sir.
Q. If in this case we drop the minimum 1-10th of an inch we still have reading of 1.4 inches as the minimum?
A. That is correct.
Q. If we take point 7, being 108 West 34th Street, indicated by the yellow line, we have a maximum of 3.1 inches, have we not?
A. That is right.
Q. And a minimum of 2 inches?
A. That is right.
Q. And if we drop the maximum point to 2½ inches, that is .6 of an inch, our minimum point would be 1.4 inches, would it not?
A. It would be if we were dealing with that pressure alone and could deal with it alone and not consider these other pressures that would be affected at the same time.

Mr. MATHEWSON: What would become of your other pressures, Mr. Kirby?
Mr. KIRBY: I think I understand, Mr. Mathewson. I think we will make it very clear even to you.

Q. If you take point 8, indicated here by the violet line, we find the maximum to be 3.35?
A. 3.35.
Q. And the minimum of that violet line is 2.1 inches?
A. Correct.
Q. Now, if you drop that maximum down to 2½ inches, which would be 8.15——
A. That is right.
Q. Our minimum would be 1.25, would it not?

Mr. MATHEWSON: That is another matter, Mr. Kirby, entirely.

A. Assuming an entirely impossible condition, it would be, yes. I have to assume that. My own experience teaches me that it cannot be done. Putting it that way, it would.

6246 Q. The points of which I have just made reference, outside of points 6 and 4, point 6 is 317 West 42d Street is close proximity to the works, and of which we have spoken, and point 4 is 879 Eighth Avenue, being at the corner of or close to 55th Street, and took the point 8, at 119 East 47th Street, which is the highest maximum reading, and dropped all of the pressures at these points, with

the exception of points 6 and 4, so that the maximum reading at point 8 is 2½ inches, is it not, a fact that the pressures at all of these points are within 1 and 2½ inches?

A. I understand by that that you eliminate these two pressures Nos. 2 and 3.

Q. I do not. I yield 6 and 4.

A. And you ask me if by dropping the pressure indicated by the line No. 8 in violet——

Q. Yes.

A. To a point that would bring it under——

Q. No, to .25.

A. That all the pressures would be within 1 and 2½ inches?

Q. Yes?

A. No.

Q. Now, point 3 would be how much below one inch?

A. Impossible for anybody to say.

Q. Point 4 would be how much below one inch?

A. That is impossible, too.

Q. In other words, you are not prepared to state that if the pressures at the point from which the gas is sent into any district, the pressure at the point from which came the gas sent into any district, were reduced so that the maximum reading in that district were brought down .5 of an inch that the readings at the other points in that district would not be correspondingly decreased?

A. I am not prepared to say that at all. The conditions vary, the conditions of consumption, the points are all scattered throughout the districts, the same conditions cannot possibly apply. A
6247 reduction might be effected of ½ inch at one point and it does not follow it would be so effected at another point in the district.

Q. Then how do you endeavor to regulate pressure to keep within any limits whatever?

A. By endeavoring to maintain a predetermined pressure at some point in the district, keeping the pressure at that point entirely uniform or as near uniform as can be kept, and having that point so located that it will be to a certain extent the indication of the pressures throughout the balance of the district supplied.

Q. Will you point out to me on these exhibits that point?

A. I will.

Q. Take Complainant's Exhibit 346?

A. The pressure maintained on this district by means of an electric indicator is shown by line No. 5.

Q. That is No. 5 Second Avenue?

A. No, it is 4 Irving Place, if I have not misread it.

Q. 4 Irving Place—you are right.

A. The line follows here (indicating).

Q. Now, we will assume that the pressure at 4 Irving Place during this day instead of having a minimum of two inches had not by your electrical indicator shown to you to be as high as that and was brought down so the minimum would be one inch, what effect would it have on the rest of the system?

A. That is only a matter of speculation. I believe that the effect on the rest of the system would be to reduce that comparatively to the same amount as indicated there now, taking that point as the guiding point.

Q. And if that had been done would the readings at No. 4 Irving Place have been 1 inch and 2½ inches?

A. If this peak had been brought down to 1 inch?

Q. Yes?

A. It would.

6248 Q. And would the readings at any of the other points in the district have been brought down?

A. They would.

Q. How would you have reduced the pressure at 4 Irving Place; by reducing the pressure at the 44th Street station?

A. Yes, sir.

Q. Then I was not speculating quite so much after all, was I?

A. You have not considered bringing the pressure of four inch- to one inch. You are bringing this down to practically nothing. It is something we cannot determine. Below one inch at any rate. I have said it is impossible to determine just what the fall would be. By taking some other point, I believe we can approximate it by taking the central point on which we are now regulating, but that is not the one you refer to.

Q. The place of reduction of pressure is the point at which the gas goes out and that is what we were having reference to when I asked the question.

A. I did not understand that that was it.

Q. Now, turn to Complainant's Exhibit 347 which states that—that gives the territory supplied by the 42d, 63rd and 65th Street stations. Is there any method by which you can state what section of this territory is supplied by any one of these stations?

A. No, there is not.

Q. Do the pipes *form* any one of these stations interlock the pipes from any other station?

A. From the same general arrangement I have already described, yes.

By Mr. MATHEWSON:

Q. What do you mean, if you do not mind stating? I am not clear on that?

A. Well, I can probably make it clearer in a general way. The territory supplied by the competing companies, the old constituent companies of the Consolidated Gas Company, were regulated

6249 by certain boundaries in certain parts of the city and since that time an effort has been made to connect the various main systems up so as to reduce the areas supplied by any one station, with the idea of forming as far as possible a more uniform pressure regulation throughout that district.

By Mr. KIRBY:

Q. You do not seem to have been very successful at point 4 on this map, being 145 West 69th Street, do you?

A. That is a point near the works where it is necessary to carry a high pressure in order to maintain satisfactory pressure at other points throughout the district.

Q. Do you know the size of mains from which the service at point 4 is taken?

A. I do not.

Q. You do not know whether it would be possible to supply point 4 from 42d Street?

Mr. MATHEWSON: Run a special main, I suppose.

Mr. KIRBY: Yes, you might have to run a special main.

Mr. MATHEWSON: Yes. That would make a capital expenditure if we proceeded on that basis that would make gas cost five dollars.

Mr. KIRBY: Yes, it might cost ten dollars, but it is not likely.

Mr. MATHEWSON: It would be quite likely.

Mr. PAGE: Under New York conditions.

Mr. MATHEWSON: Yes.

A. That point already is in the district which is to a certain extent supplied by the 42d Street station.

Q. But it is close to the 63rd Street station?

A. Oh, yes, just north of 65th Street station.

6250 Q. Yes, 65th Street station; and so, as you have just stated, the main to that immediate district comes from the holder at 65th Street?

A. Yes, that's right.

Q. And point 9, 145 East 65th Street, shown by the orange line, is practically under the same conditions as point 4, is it not?

A. Point 9 is at the corner of 65th Street and Lexington Avenue.

Q. And is there a transverse main or is there a supply main which runs across to 65th Street?

A. There is, yes, sir.

Q. And that main is of the size of 20 inches?

A. It is.

Q. And when it reaches Second Avenue it branches off and runs down that avenue as far as 34th Street?

A. Is it so shown in the map?

Q. Yes.

A. Yes.

Q. Where is the point in this section shown by Complainant's Exhibit 347 where you take the pressure readings to give you an indication as to whether or not the pressure throughout the system is greater or less than it should be?

A. Where is the point?

Q. Yes.

A. Point 10; 565 Park Avenue.

Q. Indicated by the yellow line?

A. Yes, sir.

Q. Now the maximum pressure at point 10 during the 24 hours was 2.6 inches, was it not?

A. It was.

Q. And if that pressure had been uniformly reduced .1 of an

inch throughout the entire 24 hours, is it not a fact that the only points which would have been at any time above 2½ inches or at any other time below one inch, point 4 being 145 West 69th Street, to which we have made reference, and point 9, 145 East 65th Street to which you have also made reference?

A. No, sir, there is another point.

Q. Which one is that?

A. This one.

6251 Q. What is that?

A. The pressure at 420, I think the number is—408.

Q. 408 East 63rd Street?

A. That is right.

Q. And 408 East 63rd Street is upon a 36-inch main running from the works——

A. It is attached to this main here, 20-inch.

Q. That is point 9?

A. 408 East 63rd Street is right here (indicating); that is attached to the 20-inch main.

Q. Well, whatever it is. And point 11 is at a service running from the same 20-inch main as that to which the service of point 9 is connected?

A. It is, yes, sir.

Q. Now, I presume that in the pressure readings taken in this section, as in the readings taken in the other sections, you made no general inquiry as to whether any gas was being taken off by consumers on the service to which you had your pressure gauge attached during the time in which the readings were being made?

A. I made no special inquiry for that purpose; the services are all in use to a certain extent.

Q. Now, we come to Complainant's Exhibit 348, stated to indicate the territory supplied by the 14th Street station, that station being at 14th Street?

A. I want to correct that map before it goes any further. They have inadvertently marked "23rd Street," and the proper boundary should be 34th Street.

Q. From the plotting of the territory stated to be supplied by the 14th Street and East River plant I notice that your mains run clear across the city as far west and further west than Tenth Avenue, so that the part of the territory adjacent to Eleventh Avenue and Twelfth Avenue and 14th and 15th Streets, and further north are supplied by these works; is that so?

A. That is so, yes.

Q. Now, I notice that you have put in evidence here no
6252 territory such as might be supplied by the holders at 18th Street. Does the gas from the 14th Street station supply the district contiguous to the 18th street holders?

A. Yes, it does. The 18th Street holders at present are merely used to back up the pressure in the mains at certain hours of the day, and are not a very important factor in the pressure regulation.

Q. And then adding this marginal street on the north of 34th Street we find that the section served by these works is in some parts the same as that served by the 44th Street works?

A. In parts, yes.

Q. Upon this exhibit we have readings given at point 7, being 609 East 14th Street, and to which we made reference in examining the chart showing the territory supplied from the 44th Street works. The reading at point 4, being 148 West Houston Street, was taken upon the service attached to what size mains?

A. I don't know.

Q. I note by reference to the key upon this chart that the 18-inch main is indicated by a red line with a green line thereon.

A. That is a broken red.

Q. A green line?

A. Yes, sir.

Q. Is the line which runs along Houston Street and Wooster Street an orange line? Or what size main is it? That is what I am after, and I cannot tell from here?

A. What street?

Q. On Houston and Wooster Street-?

A. I don't find Houston Street is down here.

Q. Hudson Street and Wooster?

A. In Hudson and in Wooster those are both 16-inch mains.

Q. Where is the point in this district where you take those pressure readings by which you judge the pressure to be supplied to the entire district?

A. Those are regulated to a certain extent by an indicator at No. 4 Irving Place also.

Q. Well, by that you mean the readings indicated by the red line on this chart?

A. The red line.

6253 Q. Now, the readings taken at point 3, 420 East 18th Street, are upon a service attached to what size main?

A. That is attached to a 16-inch main.

Q. Which main runs clear across the city to Tenth Avenue, does it not?

A. Yes, not full size—it reduces to 12.

Q. If the pressures at 4 Irving Place indicated by the red line were reduced so that the maximum would be less than that which is here indicated by .35 of an inch, would that not with a corresponding reduction of pressure throughout the system——

A. Do you mean three and one-half tenths?

Q. Yes; bring the readings at one point, point 7, which is 609 East 14th Street, and point 3 which is 420 East 18th Street, so that at no point would you be higher than 2½ inches or lower than 1 inch?

A. Assuming that it could be done, yes.

Q. Now, turning to Complainant's Exhibit 349, I ask if you can tell me the size of the main to which a service was attached supplying point 4, being 408 East 63rd Street?

A. That is the same point that appears on the other chart, 20-inch main.

Q. Coming to Complainant's Exhibit 350, I find that those questions which I would ask you in reference to point 3, 317 West 42d

Street, I have already covered in the examination of the other charts so I won't take up the time of repeating them now. Coming to Complainant's Exhibit 351, showing the districts supplied from the Inwood station, I note some rather interesting elevations stated upon it. For instance, we have here point 1, 185th Street and Fort Washington Avenue, indicated by the brown line, which is the line giving the minimum reading, having an elevation of 270 feet. Let us assume that point was at mean sea level rather than 270 feet.

Mr. MATHEWSON: In other words, bring it down to the Hudson River?

6254 Mr. KIRBY: Yes, we will take it down to the Hudson River. That is pretty close to sea level at that point, I guess.

Q. And I ask you if you do not consider that the pressures as shown by this chart would have been greatly in excess of those as they are here set down?

A. The question is not entirely clear to me.

Q. Well, we have a pressure here, we will go at it in another way. We will get at it. The minimum pressure shown by the brown line is .7 of an inch?

A. Yes.

Q. Now, an elevation of 270 feet, I take it, would produce a pressure in such illuminating gas as furnished here in the city of about 1.35 inches, would it not?

A. As compared with a main at sea level?

Q. Yes.

A. More than that.

Q. Well, how much would it be?

A. Well, you have to assume specific gravity to calculate properly.

Q. Well, assume specific gravity. You are familiar with the distribution of gas and matters of that kind. Assume we have an elevation of 270 feet and we will assume that you are taking pressure readings at sea level and another one at 270, and there is nothing except elevation to assist in the pressure, and I ask you what it would be at 270, as compared with sea level?

A. About 1.6 inches.

Q. Then if there had been no elevation at this point, and the conditions otherwise had in no way influenced the reading, our reading instead of being .3 of an inch would have been what?

A. .3 of an inch?

Q. That is right, isn't it, .3?

A. .7.

Q. .7 inch?

A. The reading would have been what had that happened?

Q. Yes.

A. As I understand your question you simply eliminate
6255 this pressure chart and place that particular point down at sea level?

A. That is all. And it would reduce it from its present pressure as shown there by 1.6 inches at that point only.

Q. And are these other points indicated by the various elevations—129.70 and 201.67 feet, in the same proportion, that is, the

proportion which they bear to 270, 270 having a pressure of 1.3 inches; is that what you gave these?

A. The pressure at the height of 270 feet, is 2.9 inches at the time stated. The loss would be 1.6 inches by reducing the elevation from 270 feet to zero.

Q. And the loss in the other instance would not be as great, but would be in the proportion which the elevation of those other points bears to 270 feet, the elevation of point 1?

A. The loss would be in direct proportion to their elevation above sea level.

At 1 P. M. a recess was declared until 2:15 P. M.

After Recess.

OSCAR H. FOGG resumes the stand, and further testifies:

Cross-examination by Mr. KIRBY:

Q. I notice that you took pressure readings at the corner of 120th Street and Broadway, being the readings marked in violet on Exhibit 345?

A. Yes, sir.

Q. Do you know the elevation at that point in respect to the elevation at Columbia University?

A. That is at the Columbia University in one part.

Q. That reading was taken upon a service connected to what main?

A. The main on the Broadway side.

6256 Q. Looking again at Exhibit 345, let us suppose that a consumer at point 5, being 176th Street and the Boulevard, desires to cook an evening meal at 4:45; what would have been the operation of a gas stove from that time until quarter of six, the pressure between those times varying from .9 of an inch to .7 of an inch?

Mr. MATHEWSON: Isn't that rather an extraordinary question? This man is not qualified as an expert on gas stoves and how long it would take him to cook a steak, I suppose, with the pressure varying like that. Is not that question outside of anything this witness has testified respecting? I think so. I think I shall have to object to it as speculative and not proper cross-examination.

Mr. KIRBY: If he does not know he can say so. If he does know I would like to hear.

Mr. MATHEWSON: I do not think it is cross-examination if he did know.

The MASTER: He may answer it if he knows.

Q. Do you know?

A. No, I do not.

Q. You have stated you are acquainted with the subject of gas distribution in Yonkers and other different localities. Have you noticed such extreme variations in pressure exhibited upon the charts which have been put in evidence here; have you noticed in these localities such extreme variations in pressure?

A. Yes, I have.

Q. And has there been any effort on your part or on the part of those connected with the companies that you were then associated with to correct such variations?

Objected to as immaterial and irrelevant.

Question allowed. Exception.

6257 A. As a matter of pressure variation, an effort has always been made to reduce the variation in pressure as far as it was possible to do so.

Q. From such experience and such reading as you may have done upon the subject, do you gather that it is advocated; that any such extreme pressure on the mains as shown in these charts, do you gather that it is advocated?

Mr. MATHEWSON: By whom?

Q. By those in charge of the companies with which you were connected or by the authors of such text books as you may have read upon the subject?

A. No. Pressures appear on our charts which are necessarily in excess of what would be considered an efficient and satisfactory pressure. Because of the proximity of the points to the works, the conditions of elevation, their regularities of consumption, those higher pressures occur.

Q. Have you, or has the Consolidated Gas Company to your knowledge, ever made any use of district governors for the purpose of regulating pressure?

A. They have not, to my knowledge.

Q. I believe you were present when Mr. Forstall testified, were you not?

A. I was, yes.

Q. You heard the testimony of the effect of pressure upon the efficiency of the use of gas, did you not?

A. I did not follow it very carefully. I have heard his testimony in a general way. I don't know that I recall that.

Q. Is it your opinion that any of his suggestions about check burners, by turning down burners, would effectually protect the consumer against waste of gas at such high pressures as shown in your charts?

Mr. MATHEWSON: That is objected to as altogether too
6258 general. If you desire to call the witness' attention to any particular statement of Mr. Forstall's and ask him if he agrees or disagrees with this one proposition, do so, but to deduce what the conclusions were and ask whether he agrees with general conclusions that you state, I do not think it is proper or fair.

The MASTER: I think that is a fair suggestion, Mr. Kirby, so long as the record is printed.

Mr. KIRBY: It won't take long to get at it.

Q. I call your attention to Complainant's Exhibit 348, and especially to point 7 thereon, being 609 East 14th Street; there the variations in pressure are shown by the violet line, and where be-

tween the hours of 4:30 o'clock in the afternoon the pressure rapidly decreases to 3.35 inches, and then as rapidly within the next half hour increases to 4.7 inches?

A. The next hour.

Q. 33.5; then within the next half hour increases to 3.5 inches, then in the next half hour rapidly rises to 4.7 inches, then within the next fifteen minutes drops to 4½ inches, then remains constant for half an hour, then within the next three-quarters of an hour rises to 4.65 inches, from 7:30 to 9:30 remains practically constant at 4.7, then within the next half hour rapidly drops so that at ten o'clock it is at 4.35 inches, then in the next half hour to 10:30 drops to 3.55 inches, the next half hour again rapidly drops to 2.8 inches.

Q. Now, I ask you, assuming that the consumer had his burner properly adjusted by turning the stop cock, so that it was giving efficient light at half past four, what sort of a light would he have during the hours from half past four to half past ten if he did not make any adjustment to his stop cock.

Mr. MATHEWSON: If he did not exercise intelligent, common sense, in other words.

6259 Mr. KIRBY: We will assume that that is what it is, if you desire to.

Mr. PAGE: That is, that he should exhibit the common sense which the gas company fails to exhibit.

Mr. MATHEWSON: And which the gas company cannot possibly exhibit.

A. I can't tell you what sort of a light he would have. His gas pressure at that point is necessarily subjected to the extreme variation, because of the extreme variations that occur in that district, because of its proximity to the works.

Q. Now, do you not consider that that variation would be less if the service were attached to other than the large-size main to which you have testified it is attached?

A. If there is another main there which carries a less pressure.

Q. Do you know whether or not there is another main there which carries a less pressure?

A. I don't think there is another main there—another district main there supplied by that station.

Q. You are not prepared to state that there is no other main there supplied from some other station, say the 44th Street station?

A. I have already stated that I do not believe the mains of the 44th Street station on that street go to Second Avenue.

Q. Might there be mains there from some other station than either 14th or 44th?

Mr. MATHEWSON: He says he does not know that there are.

Mr. KIRBY: I have not asked him that question yet. If he does not know he can say so.

A. I don't know that there are.

Q. Now, we will assume that the consumer at this point is

6260 displaying this great degree of intelligence which has been called upon——

Mr. MATHEWSON: Very slight degree.

Q. (Continuing.) Which is the standard set by Mr. Mathewson, which we will assume—he has fixed his meter at half-past four so that it is giving the proper illuminating efficiency, and will you tell me how many times he would have to adjust his cock on his burner so that it would continue at that efficiency until the hour of eleven o'clock, when we will assume he goes to bed?

A. No, I can't tell you that.

Q. Well, wouldn't it be at least thirteen times?

A. I should not consider it so. If you are prescribing for the highest efficiency and a very careful test of gas, where the most minute regulation is desired, he would have to change it as often as the pressure varied. I don't think that condition obtains anywhere in practical use.

Q. Then this point here is a most unusual and extraordinary point of pressure variations?

A. This point here (indicating).

Q. This point 7, 609 East 14th Street?

A. It is the general condition at points in close proximity to the works.

Q. So that if those intelligent consumers within close proximity of the works are to have an efficient illuminating power from their flame they would be jumping up and down thirteen or more times during the evening to adjust their flame.

Mr. MATHEWSON: You are assuming something that is not shown at all.

A. I don't think they would.

Q. Well, how many times? Here is the chart. You have heard Mr. Forstall tell us about how a man could go up and adjust his cock, and what the pressure would be, and no matter what it is in
6261 the distributing main he can adjust it by turning down the cock. Now, I will start at the time he has done that and goes and sits in an armchair and smokes a cigar, and what not, and the pressure goes up over an inch——

Mr. MATHEWSON: You also heard his testimony that those checked burners would work with pressures from 1 to 3 equally well.

Mr. KIRBY: Yes.

The MASTER: Well, gentlemen, let the witness dispose of it.

Mr. PAGE: We are talking about adjusting it at the cock now.

A. You asked me a question that it is impossible to answer properly. In the first place, too much has to be assumed. None of us know that the man at this point is consuming gas at the time this variation in pressure takes place.

Q. Well, assume he is.

A. If he is not using gas it does not affect it.

Q. We will assume he is using gas.

A. If he is using gas at the time that the pressure is at its lowest point here I would say that he would get a fairly satisfactory condition if he had lit his gas at that time, and when the extreme hour—

the greatest increase came on, if he adjusted his burner at that point and left it alone——

Q. And left it alone when the decrease came afterwards?

A. Well, the decrease would not have started to come until half-past nine at night and would not reach the lowest point until between eleven o'clock and midnight—about a quarter of twelve.

By Mr. MATHEWSON:

Q. He might be in bed that time, might he not?

A. I would expect him to be there.

6262 Mr. PAGE: There are some of us who sit up after half-past nine.

By Mr. KIRBY:

Q. And so you would allow this intelligent man to sit in his chair while his gas increases in pressure from 3.25 inches to 4.7 inches?

A. I would not.

Q. When would he get up? When would he adjust it?

A. He would get up when he noticed——

Q. When would he notice it?

A. When he looked at his light and it was apparent to him.

Q. When would it be apparent to him?

A. At any time the pressure was increasing, probably. We will presume he is an intelligent man.

Q. At what point would it be apparent to him? We have this very large increase of nearly .2 of an inch? At what point along the increase would an intelligent man notice that?

Mr. MATHEWSON: Objected to on the ground that counsel is examining the witness on the subject of candle power, in which subject he has not been qualified and in which subject he has not testified to anything on my examination.

Mr. KIRBY: I am examining on the point of the intelligent man.

Objection overruled; exception.

A. It might become apparent at any point between its lowest and its highest.

Q. And if it did then he would get up and turn it down?

A. I would expect him to, yes.

Q. If he were extraordinarily intelligent it might go up .2 of an inch and he would notice it?

A. If he were, yes.

Q. And he would get up and turn it down, and having that intelligence on the next increase would he not have another

6263 turning down?

A. Providing he was sufficiently intelligent to note .2 of an inch variation, to note it on an ordinary open tip.

Q. So if he turned it down every time it increased .2, instead of being 13 times it would probably be 130?

A. No, I don't think so. There are not 130 variations of .2 during the lighting hours, on the chart.

Q. Well, I count 20 here. Did you make pressure readings on any other days than January 16th and 17th?

A. We take pressures at the points you have seen here, every day.

Q. And are these points well settled ones, where the tests are taken?

A. They represent the average conditions, yes.

Q. Have you any purpose in picking out these points instead of other points in the district?

A. None whatever.

Q. Do you endeavor to pick out points where the best or the worst conditions are shown?

A. No; merely to show the general conditions applying to the district.

Q. I presume that you endeavor to regulate other points?

A. Yes.

Q. And that being so it would be an effort to ascertain how great a maximum or how great a minimum there might be in the entire district?

A. Yes. We try to keep fully informed of pressure conditions throughout the district.

Q. So you would naturally seek to find a point where it would give you the greatest pressure in a district and also the point which would give you the least pressure in the district, would you not?

A. It would be far more important, and we do make a greater effort to keep in touch with the lowest points on the district than we do the higher.

Q. You also endeavor to keep in touch with the highest?

6264 A. We endeavor to keep in touch with all of them.

Q. When you say that these charts here probably show where the points were, you mean the lowest and the highest points where you would have the highest pressure in the inspection districts?

A. I think they would, in a general way, yes. There may be points where the pressure- are lower and there are undoubtedly points where the pressures are higher than shown on these charts. It does not amount to much I believe in either case what little variation or what difference between the points that we give would be.

Q. Have you the charts, Mr. Fogg, by which you plotted the curves on these exhibits?

A. I have.

Q. Will you let me see one of them, please?

A. Which one?

Q. The one we have before us is Complainant's Exhibit 348. Suppose we take the "intelligent-man" point, 609 East 14th Street, Point 7.

(Witness hands counsel a chart).

Q. The witness hands me a disc chart, which is from Bristol's recording pressure gauge?

A. That is right.

Q. And the red line upon which indicates the pressure reading at

Point 7 of Complainant's Exhibit 348, being 609 East 14th Street; that is correct, is it not?

A. That is correct, yes, sir.

Q. I notice upon this chart certain other minute variations. Have those minute variations been plotted upon this Complainant's Exhibit 348?

A. They have not.

Q. What have you done where——

A. We have plotted the mean or average pressure line, also disregarding the very rapid fluctuations of .3 to .4.

Q. Now, I notice here between the hours of five P. M. and
6265 six P. M. at least seven variations of over one-half of a tenth of an inch, do I not?

A. Half of a tenth?

Q. I read the scale wrong. About .7 of an inch, do I not?

A. Yes.

Q. Are they indicated upon Complainant's Exhibit 348?

A The chart exhibit 348 shows the pressures at the quarter-hourly points throughout the entire twenty-four hours—such variations as may occur between the fifteen minute points are not plotted or are not recorded at all. It would complicate I think the profile to such an extent as to make it useless to show what we have endeavored to show.

By Mr. MATHEWSON:

Q. You just treat your lines between the quarter hour points?

A. Simply taken those throughout the day.

By Mr. KIRBY:

Q. So the variations during a period of fifteen minutes would not be shown, as set down upon the Complainant's Exhibit?

A. Any variation that might have occurred would not have been set down.

Q. And, as we have just found by referring to the chart from Bristol's record pressure gauge, such variations did occur in those instances?

A. If they occurred between the quarter-hourly points.

Q. They do, don't they?

A. These variations here, you mean?

Q. Yes.

A. You mean this uniform line of variation?

Q. Yes.

A. Oh, yes. Of course, that is constantly occurring.

Q. Do you know what occasions that constant variation?

A. No, I don't know definitely that in that case.

6266 Q. Do you know where this point is situated?

A. Yes, it is right close to the works.

Q. And you noticed between the hours of eleven thirty at night and five thirty in the morning there is practically no such jiggling or minute variation?

A. I do notice that, yes.

Q. Does that give you any clue as to what those minute variations might be due to?

A. I would say, from my observation of the charts entirely and without knowing the conditions within the works, that I believe it to be the variation produced by the unusually heavy draft upon the outlet of the governor or regulating valve at that time.

Q. How much larger is the scale upon the exhibits than that upon the chart from the recording gauge?

A. You cannot make any comparison of the scale between the two. You can take them separately. The chart on the gauge, the pressure scale, increases from zero to its full capacity. The chart as plotted in the profile is at a uniform rate of increase both as to the time and as to the pressures.

Q. Well, we have the time here, for instance; it is indicated along that curved line?

A. Yes, sir.

Q. And presumably the distance between each of the circular lines representing the pressure is the same, is it not?

A. I think you will find that on the first 15/10ths or 18/10ths the scale is just a trifle finer, a little more so than could be measured with a rule on the chart which you hold there. I had in mind a 20/31 chart. We have two types. The charts you have there is uniform all the way around as to the pressure divisions.

Q. In this uniform chart, which is the one to which we have been making reference, you have increased the scale upon the exhibit about how many times?

A. My whole chart has been increased in proportion a number of times.

Q. Twice, three, four, nine times?

6267 A. It is hard to say. I have not made any effort to increase it with any direct reference to this at all.

Q. In taking it off you must have known the number of times of increase so as to know——

A. We read here on the chart; we have made it a uniform rectangular scale here (indicating).

Q. And simply drawn straight lines between the points you plotted?

A. The points plotted have been connected for the sake of reference by a straight line, a point as mentioned here and at the half-hour the same; they are simply connected by a straight line to show the general tend of pressure at that time. Otherwise the points would merely appear as dots, and be hard to read—could not be read.

Q. Mr. Mathewson asked you yesterday (p. 6204): "Q. Mr. Fogg, was your attention drawn to Mr. Edgerton's testimony in reference to pressures that he took at certain points, and his argument that the pressure within the district or any particular district would be found within the boundary of 1.5 inches, or might be? A. Yes, it was." I call your attention to Mr. Edgerton's testimony, which you have stated that you read, and ask you if you can point out therein any results of the pressure taken by him which differ in any material way from those taken by you—you have read the testimony, and I take it you are familiar with what he testified to?

A. Yes, I think I read the greater part of it, of these dates. I have not seen any further testimony since. You ask me if from what I know of his testimony, the method of pressure taken——

Q. No, whether you, from his testimony and the pressure readings which he has placed in evidence, found any material difference from the pressure readings taken by you?

Mr. MATHEWSON: He only put in one or two points, or such a matter, and he showed the pressure he got at those points.
6268 This witness has not testified that those pressures as he took them were not correct. We can keep our pressure at one point undoubtedly.

Mr. KIRBY: I think the witness understands the question, and I think you do, too, Mr. Mathewson.

Mr. MATHEWSON: It seems to me quite obvious.

A. You mean the pressures we have taken at the same points that Mr. Edgerton has taken.

Mr. KIRBY: Will you read the question, Mr. Stenographer?

The STENOGRAPHER (Reading): Whether you, from his testimony and the pressure readings which he has placed in evidence, found any material difference from the pressure readings taken by you.

A. Why, I don't see how any comparison can be made between them at all. Mr. Edgerton has taken pressures at five or six or possibly seven points, I think only five upon the Consolidated. If you want me to compare the conditions right at those particular points I can probably do that, or try to.

Q. Have you done so?

A. Yes, in some cases.

Q. And what do you find?

A. At those particular points I find the pressures are about as he has indicated them.

Cross-examination by Mr. BURR:

Q. Does the black line on Exhibit 349, showing the pressure at 408 East 63d Street, represent a main used for services?

A. It does.

Q. Now, you have shown on the mains to which services are directly attached wide variations in pressure readings from
6269 .22 to .59 of an inch from 3 P. M. to 7 P. M. at 408 East 63d Street?

A. Throughout the district? Yes, sir.

Q. Isn't that an exceedingly poor regulation?

A. I shouldn't consider it so.

Q. Are not these wide variations of pressure able to be corrected by using mains adequate to the demands upon them; that is, large enough to care for the draught at all points, without a variation greater than 1½ inches?

A. I believe if it were possible in any place to instal a main system that is theoretically perfect, the variations could be materially reduced.

Q. If I understand correctly, it is the variation in the pressure

which makes the trouble for the intelligent consumer that we have been referring to, is it not?

A. Yes; if he considers it trouble.

Q. And can these variations of pressure in your opinion be obviated?

A. They cannot.

Q. You referred to the conditions of elevation, and I notice on these exhibits a note at the foot of each one reading: "Red figures at stations as shown on disc scale; usual elevations above mean high water." What did that mean?

A. That means that most of our gauges are located at the street level or very close to it. That means that we have gotten from city records—the Highway Department—elevations throughout the city above mean high water and that we have plotted them as a convenience for reference on the map in red figures.

Q. Has it been your custom to plot these pressures taking into account the elevation at various points?

A. Correcting for the elevation and reducing the pressure?

Q. Yes.

A. No, sir.

Q. Referring to Exhibit 346, can you state how far it is from the 44th Street station to point 2 at 487 Broadway as shown on that map?

A. I cannot state definitely how far it is, no.

6270 Q. Well, approximately?

A. Oh, I would only have to guess for that. I would say two and one-half miles, maybe three.

Q. How long would it take a point as far away from the distributing station as No. 2 on that map to be influenced by a change in pressure at the distributing station?

A. It would respond almost immediately to any change.

Q. You stated in your direct examination yesterday that the pressure at some points decreased while at other points it increased,, did you not?

A. Points in one district, yes, I did.

Q. To what extent did any difference depend on the distance of the testing station from the distributing station?

A. Oh, I don't know that it depends upon the distance at all. I think it depends more on the consumption.

Q. Comparing the points 7 at 108 West 44th Street and 8 at 119 East 47th Street, how far is each of these points from the distributing station at 44th Street and the North River, approximately?

A. I should say that point 8 at 119 East 47th Street is probably a mile from the station. It is the difference between Tenth Avenue and Lexington.

Q. Are not these distances nearly the same?

A. Yes, I think they are, within a comparatively short distance.

Q. Now, by referring to this Exhibit 346, you will notice for the entire twenty-four hours on January 16, 1907, the pressures at these points were almost identical, were they not?

A. There is not very much difference between them—a matter of .2 in the lighting hour.

Q. Comparing the pressures at these two points with the pressure at the distributing station, did you not find that the pressure at these two points varies directly with the pressure of the distributing
6271 station, excepting that the pressure is relatively less at these far-off points and that the change of pressure takes place a little later due to the distance from the distributing station?

A. Referring to these two points we have been talking about?

Q. Yes.

A. Yes, I think they do.

Q. Comparing station point 2 at 487 Broadway, and point No. 3 at 5 Second Avenue, how far is it from the 44th Street station, approximately?

A. 487 Broadway I have already guessed at. That is only a guess.

Q. By comparison with the other station?

A. I think if anything 487 Broadway is a trifle further from the works than 5 Second Avenue.

Q. Do you not find that the point 2, which is a little further from the distributing station than point 3 has at its minimum point a lower pressure than point 3?

A. About half a tenth, yes.

Q. Do you not find from the chart that your pressures at point 2 and point 3 were less than the pressures at points 5 and 7 at 4 Irving Place and 108 West 34th Street respectively, which points are nearer the distributing station than points 2 and 3?

A. No, sir.

Q. What were the pressures there?

A. At what particular hour?

Q. Say at five o'clock?

A. At five o'clock I find point 2 is very much lower than point 7.

Q. Make it seven o'clock?

A. Still lower than point 7.

Q. Comparing the size of the mains at points 7 and 8, point 7 at 108 West 34th Street has according to the chart a 12-inch main and point 8 has a 16-inch main, has it not?

A. There is no size of main indicated on 34th Street.

Q. What is your knowledge or intimation on the subject?

A. About the main in 34th Street?

6272 Q. Yes.

A. I don't know just what size it is.

Q. The boundaries down in this district extend from 79th Street to Grand Street and from the North River to the East River?

A. Yes, sir, they do.

Q. And this exhibit shows the pressure varies there considerably, does it not, dependent on the distance of each testing station from the distributing station?

A. In this particular case it is a fact that the lowest pressures, No. 2 and No. 3, are at the greatest distance from the works.

Q. Now, assuming that there were more distributing stations in the territory served from the 44th Street station and that the distances showed much less differences from the distributing station

than at present, would not the pressures at these points show much less differences from each other than at present?

A. I don't think I can answer that question.

Q. You mean it is not clear enough or not definite enough?

A. No, not in its present form; and as I understand it I do not believe I can answer it at all. I will try to.

Q. Yes, what is the best answer you can make to that?

A. Possibly you can put it to me in a little different shape. I would not try to answer it at all as it is.

Q. Assuming there were no more distributing stations and less distance to cover, need there be less difference in pressure?

A. Would there be less difference in pressure?

Q. Yes.

A. Yes, I think there would.

Q. Now, I understood you to say a moment ago in response to Mr. Kirby that you had no experience with regulating devices. Am I correct in that?

A. In regard to the Consolidated Company's mains, you mean?

Q. Yes.

6273 A. As I remember it, Mr. Kirby asked about an automatic district governor.

Mr. MATHEWSON: He asked whether the company here used that, and Mr. Fogg said no.

Q. Have you had any experience at all with pressure regulation, with regulating devices of any kind?

A. District devices?

Q. Yes; automatic governors?

A. As set in some parts of the street main system away from the works?

Q. Yes.

A. No.

Q. Then you cannot say whether it is possible to regulate the pressure of gas without impeding its flow by means of diaphragm pressure regulators?

A. I know that diaphragm pressure regulators are employed for the regulation of gas pressures.

Redirect-examination by Mr. MATHEWSON:

Q. You were cross-examined respecting qualifications, and I will ask you whether you were in the employ originally of the United Gas Improvement Company of Philadelphia?

A. I was.

Q. And as Constructing Engineer had you any charge of the designing or the construction of the distributio- system at Ocean City?

A. I designed the works and the distributing system at Ocean City, had charge of their construction, put the plant into operation there upon its completion, and was superintendent for a time after the plant was in operation.

Q. Were you in charge of street main construction for the Mt. Vernon Company?

A. Of a section of the large contract work that was done up there before their merging with the Westchester Lighting Company; yes.

Q. In 1904 you were employed by the Consolidated Gas
6274 Company as engineer to supervise the construction of the 36-inch main regarding which you have testified?

A. I was; yes, sir.

Q. Between the 111th and 132nd Street Stations?

A. Yes.

Q. What have been your general duties for the company since that?

A. Since that time I have had charge of the draughtsmen and the record clerks of the department of mains and services. In addition to that I have had the gen-ral inspection of all subway and tunnel work in New York City, in particular in relation to the protecting of this company's mains. I have also had charge, as I testified, of the gauge pressure stations, of which there are seventy-four maintained throughout the city, and from time to time I have been detailed to the supervision of special work, with regard to street mains.

Q. Are you a member of the American Gas Institute?

A. I am; yes, sir.

Q. And of any engineering society?

A. I am a member of the Illuminating Engineering Society, yes.

Q. Have you ever tested these recording gauges which are used by the Consolidated, as to their accuracy?

A. Before we adopted these gauges for general use throughout the city I made a very extensive series of tests with the device that we now use to determine within what ranges of pressure they are entirely accurate, and I found that they weer thoroughly reliable and correct.

Q. You found that they responded instantly to variations in pressure?

A. I did.

Q. Now, as to these different divisions of the city, I understand that the divisions are separated from each other by valves or something of that sort, in normal condition, is that correct?

A. That is correct; yes, sir.

Q. And is that for the purpose of equalizing the pressure
6275 or establishing districts in which you can get as uniform a pressure as possible?

A. Its purpose is to reduce the district supplied by each station in order to effect the most uniform pressure regulation possible.

Q. Have you ever claimed if you select any one particular point that you could not keep the pressure at that one particular point between 1 inch and 2½ inches range?

A. No, sir, I have not.

Q. Mr. Edgerton testified that he observed the pressures at those points that he thought likely to give the greatest difference of pressure, the highest point and the lowest, and those most remote as well

as a few nearer the works; did you find that in fact he did select such points for his experiments?

A. I did not.

Q. Did you find in actual experience as shown by these charts, that the ranges of pressure were actually very much greater than he showed for those particular points which he took?

A. I did, yes, sir.

Q. And as a matter of fact the highest elevation which Mr. Edgerton took was about 136½ feet, wasn't it?

A. The elevation where Mr. Edgerton took this pressure was at Columbia University, in room 206, Fairweather Hall—that is right opposite 118th Street on the Amsterdam Avenue side. The elevation of the intersection of 118th Street and Amsterdam Avenue is 126½ feet. Mr. Edgerton stated in his testimony that the point he took was about ten feet above the street level. That would make it about 136½ feet; that is the maximum.

Q. As a matter of fact, the mains of the company supply a point of elevation of over 200 feet?

A. They do.

Q. Do you know what the elevation of 186th Street and Fort Washington Avenue is?

A. At 185th Street and Fort Washington Avenue there is an elevation of 270 feet.

6276 By Mr. KIRBY:

Q. All set down in the charts?

A. Not all of them.

By Mr. MATHEWSON:

Q. Is there not a difference of elevation of 237 feet at points supplied by our mains within a distance of less than half a mile?

A. There is.

Q. A question was asked as to what relation a number of feet drawn from service mains supplying one point had to a number of feet drawn from the service mains supplying another point. Is it possible to introduce any such comparison or make any relation between the two?

A. I do not consider it is. No, sir.

Q. Your attention has been drawn to certain points where the pressure is quite variable, such as to 609 East 14th Street. I suppose if the company was to disregard the expense and introduce capital enough, and there was in the street room enough so they could run a separate main to each consumer, they could make the pressure uniform, or substantially so within 1½ inches?

A. I believe, if there was no obstacle in the way of a theoretically perfect distribution system, they could do so.

Q. Is that commercially possible in the City of New York?

A. Not in my judgment; no, sir.

Q. These charts which you presented, I understand, represent actual working conditions?

A. They do.

Q. As you meet them day by day?

A. Yes.

Q. Is it true, if you assume a reduction of one inch in pressure at one point in the system, you mean a reduction of one inch in pressure at every other point in the system necessarily?

A. Not at all.

Q. Isn't it true that the pressure at one point of the system
6277 may be going down and at another point going up, with the initial pressure at the holder identical?

A. That is the case, yes, sir.

Q. Now, let us test Mr. Edgerton's theory for a moment. Take Complainant's Exhibit 350. Suppose we try to guess the pressure at the holder by having a gauge indicating that the pressure was going up or down at some point. We will take these points at 4:30 P. M. Take point 5 shown on Exhibit 350. Now, from 4:30 on the pressure appears to be dropping at point 4, doesn't it?

A. It is, yes.

Q. And if you were to be governed at your station by the apparent drop then you would raise the pressure?

A. We would.

Q. However, if you look at the point marked green, 317 West 42d Street, and you had an electric connection with that, that at the same moment would show the pressure rising there, wouldn't it?

A. It would.

Q. If you arranged the pressure by a majority and, say, four were going down and one going up, and you would raise your pressure, you would actually raise the pressure in reference to that particular point where the pressure was rising much more rapidly than it was going down at these other four points?

A. Yes.

Q. And that would be unwise to be governed by the majority pressures?

A. I should think so.

Q. Is it possible, from your experience, to take any one station or the indication of any one station as plotted on these charts and proceed to regulate for that station upon the assumption that every other station will fall in pressure or rise in pressure in the same proportion as you had the pressure for that point?

A. No, it is not.

Q. Does your experience show that directly the contrary will be true?

A. It does.

Q. You spoke of the 18th Street holders being now used to
6278 back up the pressure at certain hours of the day. Are they not still used as a necessary part of the distributing system?

A. Oh, yes, they are.

Q. And necessarily?

A. Entirely so. I do not remember my exact answer to that question except that I said——

Q. You said it was used to back up pressure at certain parts of the day?

A. That is what it does. The gas is not sent out from there.

Q. You mean that is not a manufacturing station?

A. Yes. It is transferred to those points from 14th Street, and the pressure regulation for that part of the city effected from that station.

Q. If there is pressure enough for a consumer to use for his different appliances he can regulate it. If there is not pressure enough is there any way by which he can secure the gas?

A. No.

Q. Assuming he has two apparatuses, a stove requiring two or two and one-half inch pressure, and the flat-flame low pressure burner which shows the greatest efficiency at one-half inch pressure, do you know of any way in which he can use both of those without regulating one or the other and exhibiting this common sense to which we have referred?

A. No possible way to do it that I can see without regulating. It is a natural thing to do.

Q. Do you know of any method by which a consumer can get an absolutely uniform pressure upon a single apparatus throughout the twenty-four hours of the day?

A. No, I do not.

Q. Isn't it true that if you take one of these points in Exhibit 345 or the succeeding exhibits, which shows a range between one inch and two and one-half inches, in such cases there are constant drops or rises of half a tenth or half an inch, so he would have to
6279 continue to make changes twelve or thirteen times even in this case if he wanted to keep a supply at his burner of exactly the same amount at all times?

A. If he wanted to maintain the pressure absolutely uniform.

Q. It is not confined to the stations and cases where you have the highest variations, is it?

A. No.

Q. In reference to regulating devices, the form, as valves and valve houses, aren't they, for the purposes of regulation so far as that can be done effectively?

A. Of the pressure of the gas leaving the station, yes, of course.

Q. And I will ask you whether in your judgment and upon your experience it is possible in New York City by any system of valve or by any automatic regulators in the streets to render the pressure at all points and at every time in the City of New York between 1 and 2½ inches and at the same time distribute gas efficiently to each consumer?

A. I consider it utterly impossible.

Q. Do you know of any system where the consumer if he does not exercise some reasonable supervision over his apparatus can get efficient service at his different burners?

A. No.

Q. Or obtain a uniform pressure at the different burners?

A. Not without exercising some judgment as to the manner of using them; certainly not.

Recross-examination by Mr. KIRBY:

Q. Does Complainant's Exhibit 350, one of those profiles which you produced here, show the rising and falling pressures of the district gauges without direct reference to the pressure maintained at the works?

A. Yes, without showing the works pressure maintain-d at that time, on the profile.

Q. The Consolidated Gas Company has certain holder stations—63rd Street, 65th Street and others?

A. Yes.

Q. And these have been considered by you in making up
6280 your charts which have been placed in evidence?

A. Yes.

Q. Was 18th Street considered by you the same as 63rd Street, 65th Street, and the other holder stations?

A. 18th Street was considered by me with regard to the district supplied by the 14th Street station, and the works pressure for 18th Street should have been shown on the profile for the 14th Street district.

Q. In the 18th Street station supplying gas in the district shown by you for the 14th Street station the same as 63rd Street, 65th Street and other holder districts do for districts indicated by them?

A. Yes. This is a holder station and takes gas from the manufacturing station and distributes it after regulating the pressure there on that section of the district.

Q. Then your charts are deficient in that they do not show the station pressure at 18th Street?

A. The one chart on the 14th Street district is lacking the works pressure line for that station, yes.

Q. That works pressure would have an influence over the pressures throughout that district, would it not?

A. Particularly on that side of the district, yes.

Q. Would it have an influence on any other district than the one shown in the 14th Street chart?

A. No.

Q. What position did you occupy with the U. G. I. of Philadelphia?

A. I was employed by the U. G. I. Co. in 1895, in a clerical position, in the purchasing and later in the engineering department.

Recross-examination by Mr. BURR:

Q. Pressure falling at one point while it was rising at another point would indicate, would it not, that the mains at the point at which the pressure fell were not large enough to take care of
6281 the demand on it by the consumer?

A. No, not necessarily.

Q. Why not?

A. I think that as a matter of fact a somewhat special condition of consumption, some excessive distance from the works or some particularly low el-vation, would have bearing on that.

Q. In addition to the size of the main?
A. Yes.

Redirect-examination by Mr. MATHEWSON:

Q. You have been asked in reference to using a larger main and decreasing the pressure. If a six or eight-inch main was sufficient to supply all the demands of the street or vicinity would you consider it as wise or as expedient to put in a thirty-inch main merely because there would be less pressure in a big main, with the same amount of gas?
A. No, certainly not.

OSCAR H. FOGG resumes the stand and further testifies in rebuttal:

Direct-examination by Mr. MATHEWSON:

Q. Have you prepared, Mr. Fogg, for the year 1905, which we have been considering principally in this connection, a chart showing the variable demand on the street system?
A. I have, yes, sir.
Q. And what does this chart which you now produce indicate?
A. That chart indicates the hourly output or the variable demand on the street main system at two days in the year 1905; the heaviest day of the year in the heaviest part of the year and the heaviest day in the lightest part of the year.
Q. That is the heaviest day in the winter and the heaviest day in the summer?
A. Exactly.
Q. So that the chart that you have now shows the maxi-
6282 mum of the summer months and the maximum of the winter months?
A. It does.
Q. And the difference in consumption and direct connection with the maintenance of pressure and the difficulty of maintaining pressure?
A. It is.

The chart is offered in evidence.
Received in evidence and marked Complainants' Exhibit 352.

Q. What does this second chart I now show you indicate?
A. The second chart shows the same maximum day as plotted on the first chart, and the minimum day of the year 1905.
Q. In other words, the extreme difference between the maximum day and the minimum day of the entire year?
A. The extreme condition for the whole year; yes.
Q. In each one of these charts the figures at the left represent thousands of feet, do they?
A. They do.
Q. And the figures at the top represent the hours of the day?
A. They do.
Q. And the figures under the date in each case represent the output?
A. They do, yes, sir.

The chart is offered in evidence.
Received in evidence and marked Complainant's Exhibit 353.

By the MASTER:

Q. These high figures are the same in both charts?
A. They are, yes.

By Mr. MATHEWSON:

Q. This is the minimum summer day against the maximum day?
A. Yes.

Q. There have been spread upon the record two letters of
6283 C. F. Lacombe, Chief Engineer of Light and power, complaining that the pressure at the pumping station, 179th Street and Amsterdam Avenue, was poor; the second letter repeating the complaint and saying that the inspection made by the city on December 5th found that the trouble had not been remedied. Now, the pressure of the gas at that particular point is regulated, is it not, by the station at 132nd Street mainly?

A. I believe it is. It is affected to some slight degree possibly also by the pressure backed up from Inwood.

Q. Precisely, by those two?

A. Those two.

Q. Have you the Bristol recording chart which was taken pursuant to your directions, the regular chart of the company, on December 5th, at the 132nd Street station, showing what pressure was there when the city was unable to get sufficient pressure at the pumping station?

A. I have.

Q. Is that it?

A. That is the chart.

Q. Have you also the chart for the Inwood station for the same period?

A. I have.

Q. Is that it?

A. It is.

Mr. MATHEWSON: I offer the chart for the 132nd Street station and for the Inwood station in evidence.

Received in evidence and marked respectively, Complainant's Exhibits 354 and 355.

Q. The pressure appears, does it not, to have been about 6½ inches at 132nd Street when the gas was sent into the distributing mains?

A. It ranges from a pressure of 1.9 inches at the minimum to 6.3 inches.

Q. And does Exhibit 355 show that at Inwood the pressure was from 1.8 to about 3 inches for the same day?

A. Yes, sir.

Q. When Mr. Simpson was on the stand he was asked in reference to a test which was made after the receipt of Mr. Lacombe's
6284 letter of December 12th to see what the pressure in the vicinity of the pumping station was, and he produced a chart.

Was this pressure taken by your direction upon the chart I show you for the purpose of determining what the pressure was at the pumping station? That is taken on the lamp post, isn't it, near it?

A. It is taken at the base of the lamp post. I had it taken at Mr. Simpson's direction.

Q. That shows a minimum pressure at that point of 1.3 inches, such minimum pressure being at 6 o'clock P. M., doesn't it?

A. It does, yes, sir.

The chart is offered in evidence.

Received in evidence and marked Complainant's Exhibit 356.

Q. This test was made on what date; that gauge was taken on what date?

A. That chart was removed actually at 2 o'clock in the afternoon of December 15th. The clock movement was a little bit late on that and the time shows 1.45; the man removing the chart, however, has marked that "15 minutes slow;" he has noted that difference and marked it 15 minutes slow.

Q. The pressure at this particular point was supplied, was it not, by the 132nd Street station, backed up, as you have said, by the Inwood pressure?

A. It was, yes, sir.

Q. Now, will you look at these two charts which I hand you and say whether they are the records of the 132nd Street pressure at that time and covering the same period as Complainant's Exhibit 356, showing the pressure at the lamp post close to the city pumping station?

A. They are; yes.

Q. Now, at the time when the pressure at this lamp post close to the city pumping station was 1.3 inches, that is its minimum, what was the pressure at the 132nd Street station as the gas went
6285 into the mains?

A. At 6 P. M. the pressure at the 132nd Street station was just rising from 6.2 inches to 6.35 inches, rising right on the hour line.

Mr. MATHEWSON: I offer those two charts in evidence relating to 132nd Street.

Received in evidence and marked Complainant's Exhibits 357 and 358.

Q. And do these two Bristol recording charts which I now show you represent the pressure at the Inwood station covering the period of Complainant's Exhibit 356, being the pressure chart at the lamp post near the pumping station?

A. They do.

Q. And what appears to have been the pressure at the Inwood station at 6 P. M., when the pressure at the lamp near the pumping station was 1.3 inches?

A. 3.1.

The charts are offered in evidence.

Received in evidence and marked Complainant's Exhibits 359 and 360.

Q. Now, at the time that the test was made on the lamp outside of the pumping station at the lamp post, and covering the same period as Complainant's Exhibit 356, was a record taken inside the pumping station so as to show the exact record there?

A. There was.

Q. Is that it?

A. Yes.

Q. And this shows, does it not, that at 6 P. M., the time to which we have been referring, the pressure inside the pumping station was .9 of an inch, or substantially that?

A. 8½.

The chart is offered in evidence.

Received in evidence and marked Complainant's Exhibit 361.

6286 Cross-examination by Mr. KIRBY:

Q. Do I understand that Complainant's Exhibit 352 shows the sales of gas by the Consolidated Gas Company?

Mr. MATHEWSON: No; sent out.

Q. What does it show?

A. It shows the variable demand on the street mains in the City of New York.

Q. What do you mean by the variable demand on the street main system?

A. I mean the maximum and the minimum day consumption on the mains in New York City.

Q. How is that consumption measured; that is what I am getting at?

A. It is the output, the maximum day divided into hourly points.

Q. You mean the total number of feet of gas sent into the mains from all the stations?

A. No. We mean it is the total number of cubic feet of gas sent out by all the stations into the street mains.

Q. Which would be represented by the sales during that day, less the loss?

A. Yes, exactly.

Q. The last is also true of Complainant's Exhibit 353?

A. That is correct.

Q. Now, as far as the appearance of this curve is concerned, in Exhibits 352 and 353 or these other curves, it would make no difference whether the output was shown by thousands of cubic feet or one cubic foot or any number—the feet would be indicated in the same way and the general character of the curve would be the same, would it not?

A. You mean the shape of the curve would be the same?

Q. Yes.

A. If the consumption were reduced in any given proportion both days?

Q. Yes.

A. Yes, provided the hourly scale were reduced in the same proportion.

Q. And if instead of thousands you had one cubic foot or
6287 5,000 cubic feet it would make no difference what the unit of measurement was, the character of the curve would be just the same?

A. Provided the reduction in the profile were made correspondingly both as to the time and the spacing.

Q. Now, you know that a great amount of electric current is furnished in the Borough of Manhattan, do you not?

A. There must be. I should say yes.

Q. You are also familiar with the fact that that consumption is not uniform throughout the twenty-four hours, are you not?

A. The consumption of gas?

Q. Of electric current?

A. No, I don't suppose it is.

Q. And they have a very heavy load at certain periods of the day compared with other periods, have they not?

A. I should think so, at the lighting hours.

Q. What is known as a very high peak?

A. Yes, I should think so.

Q. Which would correspond to the high peak indicated in Exhibit 352?

A. I don't know whether it would correspond at all. I am not prepared to say that. They must undoubtedly have a heavy peak in lighting hours. That is as far as I am prepared to say anything about it.

Q. And are you not also familiar with the fact that they maintain practically a constant voltage or pressure notwithstanding that peak?

Mr. MATHEWSON: I object. I do not think you can very well compare electricity and gas in that regard.

Question allowed; exception.

A. I am unable to answer the question.

Q. I call your attention to Complainant's Exhibit 354. I do not quite understand where that reading was taken. Will you
6288 inform me again, please?

A. That is the initial pressure of the gas entering the distributing mains from the 132d Street station.

Q. Will you kindly give me the chart which shows the pressure readings outside of the pumping station?

A. Here it is (Complainant's Exhibit 356).

Q. Where was that reading taken?

A. At the base of the street lamp—directly outside the pumping station on Amsterdam Avenue.

Q. What size main is the lamp connected with?

A. I don't know.

Q. What was the consumption of gas from that main?

A. I don't know.

Q. How far was that point from the 132d Street station?

A. Why, I would guess it at probably 2¼ miles.

Q. What was the difference in elevation?

A. Between what, that point and the station?

Q. Yes.

A. I could tell you by referring to some of the profiles here and to the elevation marked on the back of the chart and I will give you the elevation of the 132d Street station: the elevation of the 132d Street station is 35 feet.

Q. And while you are referring to that exhibit giving the elevations, what was the elevation of the Inwood station?

A. The elevation of the Inwood station was 40 feet.

Q. I call your attention to Complainant's Exhibit 361. Am I right in stating that that pressure reading was taken inside of the city pumping station?

A. It was.

By Mr. MATHEWSON:

Q. That was taken on the service inside and the other was virtually on the main outside?

A. Yes, sir.

6289 By Mr. KIRBY:

Q. Comparing Exhibit 356 with Exhibit 361, I ask you if you can find any points on Exhibit 361 which indicate as high a pressure as any corresponding point of Exhibit 356?

A. The pressures are practically un-form, except in the lighting hours; that is, there is not much difference between them.

Q. They are lower within the station than they are outside?

A. They are naturally lower inside the station; the station is a lower elevation than the street.

Q. How much?

A. I think the charts state.

Q. I fail to see where they so state, unless it be this note on the back of Exhibit 361, approximate elevation of gauge 40 feet below street surface; is that what you refer to?

A. Yes; the pumping station is in a hollow there; it is below the street's surface.

Q. And the elevation of the station is, as set down in Exhibit 356, 157.49 feet above mean sea level?

A. That is the elevation of the street outside the station.

Q. That is the point where this reading was taken?

A. Yes, the street reading, that is right.

Q. How much difference do you calculate this 40-feet would make in pressure?

A. A trifle over .2 on a gas of 600 specific gravity.

Q. So that if we take, say, 9 P. M., when the reading inside the station is 1.5 inches, the reading outside the station would be approximately 2 inches?

Mr. MATHEWSON: You have omitted the loss in going through the service. Even if on the same level, it is about half an inch.

Q. Well, look at the charts and the two exhibits, and tell me what the loss is and to what cause you attribute it?

6290 A. Loss between street pressure and the pressure at the head of the service inside of the pumping station is 4½/10ths. I think that is accounted for both by the drop in the pipe consumption——

Q. How much by the drop in the pipe?

A. And the drop due to elevation. The drop due to elevation I have given at a trifle over .2—say .2. It would leave the difference in the drop to the consumption; friction passing through the pipe.

Q. And which, of course, would indicate that gas was being used in the station?

A Yes, sir.

Q. And if such gas was not being used. the two charts would be identical except for the loss due to elevation, which you have stated to be approximately .2 of an inch?

A. If there was no consumption loss that would be the case. If there was no consumption the question of pressure regulation would not bother us either.

Q. I assume that is quite true. I assume you obtained the total here by adding up the readings at the various meters from the manufacturing stations or the holder stations?

A. No; I merely took the hourly test as kept in the records of the engineering department.

Q. That is the way they are kept, is it not?

A. Yes, I have taken it from their records.

Q. Did you allow for the gas which came from the Standard and New Amsterdam or other companies?

A. That is the total sent out by both companies.

Q. That is the total sent out?

A. I have not stated so here as clearly as it might have been stated. That is the street main system of New York.

Mr. MATHEWSON: That is merely to illustrate the difference in consumption.

Mr. KIRBY: That is what I intended to get at in the beginning.

6291 Q. What do you mean by street main system—New York, Manhattan and The Bronx?

A. On Manhattan Island.

Q. From any and every source whatever?

A. Yes, from there.

Cross-examination by Mr. BURR:

Q. What did you say Exhibit 356 shows, Mr. Fogg?

A. Exhibit 356 shows record of the pressure on the street lamps located outside of the pumping station at 179th Street and Amsterdam Avenue.

Q. And shows it to be what? 1.3 inches?

A. That is the lowest point; yes, sir.

Q. When was that?

A. 6 P. M.

Q. That is the minimum?

A. Correct.

Q. What was the size of the main leading into the city's pumping station at that point?

A. The service?

Q. Yes.

A. That I don't know.

Q. What was the size of the main from which you got the pressure—you don't know, you say?

A. No. This pressure?

Q. Yes.

A. The service you mean leading into the building?

Q. The service?

A. No, I don't know that.

Q. Do you know the size of the main in the street?

A. No. I have already stated that.

Q. Now, Exhibit 353, does that exhibit cover gas purchased by the Consolidated as well as gas made by the Consolidated?

A. That includes all gas sent out by the Consolidated, therefore I assume it must.

Q. It includes purchased gas?

A. It includes all gas sent out. It must include the purchased gas.

Q. Have you carefully kept these records of the demand on the mains of the Consolidated Gas Company?

A. In that form?

Q. Yes.

A. No. We have never plotted them that way. Yes, I
6292 do remember that. They have been plotted that way several times.

Q. Don't you keep a record showing the maximum and the minimum?

A. Oh, yes, a book record, a record of the hourly send-out. That is where I have gotten these figures.

Q. And these figures 81,587,000 represent the maximum output on January 4, 1905?

A. For the total 24 hours, yes, sir.

Q. That is the maximum for the whole year?

A. That is the highest part of the year.

Q. Have you a record showing the maximum output in the highest record for the year 1906?

A. There is such a record, yes; there must be.

Q. And for 1904?

A. Yes. I suppose so. There is a book of "Send-Out" records. Those ones I have here are the only ones I have had occasion to refer to.

Q. Do you keep those?

A. No.

Q. Who keeps them?

A. Those are kept by the engineering department—the Chief Engineer's clerical force.

At 4:25 P. M., adjourned to Monday, January 28, 1907, at 11 o'clock.

Last Exhibits:

Complainant's, 361.
State's, 000.
City's, 236.

6293 NEW YORK, *January 28th*, 1907.

Met pursuant to adjournment.

Present: The Master, Mr. Mathewson, Mr. Kirby, Mr. Page.

Mr. MATHEWSON: Mr. Master, consecutive with Mr. Fogg's testimony I would like to have a few of these charts from which the profile was made up marked so that they may be compared if desired. The first one is the reading at 4 Irving Place; the chart for two days is presented so as to cover the period shown in the profile.

Chart received in evidence and marked Complainant's Exhibits 363*a* and 363*b*.

Mr. MATHEWSON: Also the pressure gauge for 609 East 14th Street, showing the extreme variation of that district..

Chart received in evidence and marked Complainant's Exhibit 364.

Mr. MATHEWSON: Also the gauge at 317 West 42nd Street covering the period plotted on the chart; this gauge covers two days.

Chart received in evidence and marked Complainant's Exhibits 365*a* and 365*b*.

Mr. MATHEWSON: Likewise for 145 West 69th Street, covering two days, in order to cover the period profiled on the chart.

Chart received in evidence and marked Complainant's Exhibits 366*a* and 366*b*.

Mr. MATHEWSON: Mr. Burr telephoned that he cannot be
6294 here for half an hour, and suggests that we proceed, and if it is agreeable I will do so.

ROBERT A. CARTER recalled as a witness in behalf of the complainant, in rebuttal, testified as follows:

Direct examination by Mr. MATHEWSON:

Q. Mr. Carter, in view of remarks in the testimony of Mr. Marks I wish to ask you just a moment in respect of his examination of the plant and books. You were informed at the outset, were you not, that Mr. Marks would be in charge of the examination of the books of the company and not of the examination of the plant?

A. Yes, sir, I was so informed.

Q. And in the course of this examination of the books, how many men were employed in your office for several weeks?

A. From 25 to 35 men; as high as 35 men at a time.

Q. With Mr. Hall also?

A. Yes, sir.

Q. And was any information denied them in respect to the period which they were to examine?

A. None whatever.

Q. After a considerable time were you asked by Mr. Marks whether he might examine the plants, and did he say why?

A. He asked to be permitted to examine the plants in connection with certain vouchers which the Board of Advisory Engineers wished some further information regarding.

Q. And what did you tell him?

A. I told him that if he would indicate the specific vouchers that were questioned we would be glad to comply with that request.

Q. And as soon as those vouchers were indicated, several
6295 weeks later, did you then permit him to go into the plant and examine?

A. Yes, sir.

Q. And that is the whole story, is it not, in brief?

A. All there is to it.

Q. Now, Mr. Marks introduces a certain theory as to the increase in the output of gas on Manhattan Island. What have you to say on that subject?

A. My opinion is that when Mr. Marks gets away from Manhattan Island in showing increase in gas consumption, whether due to reduction in price or any other reason, he deals with situations in no respect comparable as to territory. The Consolidated Gas Company having its natural and permanent limitations, it has no suburbs through the development of which additional business is likely to be had. Such growth in the gas business in Greater New York will benefit such companies as Brooklyn, Bronx, Long Island and Jersey City companies, and not the companies supplying the Island of Manhattan. In Mr. Bemis' testimony he stated in respect to the increase in London, that the increase on output was in the suburbs of London and not in the city proper. Respecting the alleged probabilities of increase on the volume of gas sold in the Borough of Manhattan, the reduction in the price of electric current is resulting in its introduction into almost every new apartment house which is erected.

New devices for the use of electric current for domestic as well as commercial purposes are constantly appearing on the market, including cooking and heating apparatus, the development of which cannot fail to cut into the business of the gas companies.

In addition to the reduction of the price of electric current,
6296 the introduction of incandescent lamps which give a greatly increased illumination in proportion to the amount of current used, also operates to cheapen this service and encourage its more general use in place of gas.

Mr. Marks made some calculations showing increase of gas sales in the future due to reduction in the price of gas and increase in population. In my judgment the rate war in 1899 and 1900 and the coal strike in 1902 and 1903, both operated to establish an average consumption per capita, which will probably never be exceeded in New York City. It is greater in New York than elsewhere as shown by the testimony. In the former case the sixty-five cent rate led to a more liberal use of gas than ever before, and this has survived the restoration of the price to a paying basis. The coal strike led to a more general use of gas for domestic purposes, cooking, heating, etc., which had its permanent effect. In my opinion a reduction in the price of gas at this time to sixty-five cents and another coal strike could not possibly lead to a repetition of those results. In other words, any advantage resulting from a substantial decrease in price of gas, we already have to the fullest extent, and any increase

we might realize in population is likely to be entirely, if not more than absorbed by the development of the electric business.

There is another feature of the question dealing with the substitution of electric current for gas that is very important to the gas companies, and that is the fact that it is in the larger installations that gas is supplanted with electricity. Though the meter may not be taken out, the consumption of gas drops to practically nothing,
and they keep the gas meter there as a kind of a stand-by
6297 service in the event of the electric current giving out; and the result is that while the company has all the expense of attending to that installation, indexing and billing and collecting, and all the other distributing expenses that it had when a large volume of gas was consumed, there are small sales over which to spread such expense. In other words, the company is losing large units of business, and taking on a number of small units of business, which cannot fail to increase the cost per thousand of distribution as well as decrease the average sales per meter in use.

Q. Now, Mr. Marks makes a certain estimate of operating cost and in that connection a certain estimate of depreciation.

A. The weakness in Mr. Marks' estimated cost of operating is that it contradicts his value of the plant and property, or his stat-ment of the value of the plant and property contradicts his estimated cost. The two by no means can be reconciled. The average cost of repairs and renewals since 1884 has been shown to be 10.89 cents per thousand cubic feet sold. According to Mr. Marks' valuation of the plant this has not been sufficient to take care of repairs, wear and tear, supersession, obsolescence, inadequacy and antiquation. He finds that notwithstanding the amounts expended on the upkeep of the property it has nevertheless depreciated in value some $6,738,736.72, shown by comparison between the amount invested in manufacturing plant October 31, 1905, as shown by the company's books, $16,087,428.72, and the actual present value of operating buildings and gas apparatus, shown in Marks' table, page 5108 of this testimony, $9,348,692. The depreciation therefore claimed by Marks
over and above that which has been taken care of by expendi-
6298 tures for repairs and renewals is $6,738,736.72, which distributed over the sales since 1884, 164,076,199,000 cubic feet, amounts to 4.11 cents per thousand cubic feet sold. In his estimate of the proper allowance for operating expenses, he employed the actual expenditures of the company for repairs for the calendar year 1905, and the cost of renewals for the nominal year ending October 31, 1905, which happened to be lower than for the calendar year, and reached a total of 53.51 cents per thousand cubic feet sold, and said in his judgment that was an adequate allowance. While it is inadequate from any standpoint it is particularly and strikingly so from the standpoint of his valuation of the plant. If he asks that that be accepted he must augment his cost to operate as follows:

Average expenditures for repairs and renewals from 1884 to 1905	10.89c.
Additional loss in value, according to Mr. Marks' estimate.	4.11c.
Making a total of	15.00c.
He allowed for repairs and renewals	7.03c.
Leaving a balance of	7.97c.
To be added to his estimated cost of	53.51c.
Making a total of	61.48c.

But to this amount should be added certain amounts which Mr. Marks rejected and which obviously enter into the complainant's cost of manufacturing and distributing gas.

Tax on dividend on capital invested in gas business	.47
Interest on deferred taxes	.71
6299 Interest on consumers' deposits	.39
Making a total of	1.57

There should also be added the items which he deducted from the expenses but which are also included in the income.

Income from stove rent		.92
Real estate rent		.28
A total of		1.20
Also an item of street lamp expenditures for maintenance which he excluded	2.18	4.95
Making a total to be added to his		61.48
Of		4.95
Making a total of		66.43

This amount includes no allowance for reserve or contingent fund, or for additional enrichment for a full 22 candle power year, the year in question having co ined but six months of 22 candle power term, and said six months not including the cold winter months, when the highest enrichment is required.

Q. Now, as a matter of fact, Mr. Carter, the expenses are expenses, are they not, whether they are subsequently met in part by receipts or not; in other words this is an operating expense account you are dealing with?

A. Yes.

Q. The fact that the company has stove rents does not decrease at the time its expenditures for stove repairs, does it?

A. Not in any sense, no sir.

Q. And when you come to deduct receipts in reaching an expense account you are not confusing the two accounts?

A. You are getting something that is not expenses at all.

6300 You are getting another figure entirely. It does not represent expenses. There is one other consideration in that con-

nection which Mr. Marks finds this depreciation to have occurred in the value of the company's property of some $6,738,000. The amount which the company has expended since 1884 in repairs and renewals of its plant over the amount which he allows in the expense would amount to between six and seven million dollars. In other words, if he is right in his estimate of costs, then that amount which the company has expended must be considered as addition to the plant to arrive at the amount which he depreciates the plant in his estimate of its present value.

Q. Mr. Marks made an estimate and computation and gave testimony as to the cost of land and plants of the company. Do you find that to be accurate or inaccurate?

A. Quite inaccurate, and he refers to it in his later table by which he reaches the value of the plant and property by an entirely different process, referring to it evidently as confirming his present valuation.

Q. Now will you recall the figures which he used as a basis and proceed to point out the errors he made?

A. On page 2366 of the testimony, he gives the "increase in the real estate, plant, property and construction since 1884," (referring to Exhibit 89, page 371) as $9,693,565.90. The increase shown here in one item is given in detail in Exhibit 79, page 347a. From the total increase he deducts what he states to be the increase in the value of real estate—$597,918.28 and gets a balance of $9,095,647.62. The increase in real estate which he deducts is the increase between November 11, 1884, and December 31, 1905, instead of October 31st, 1905. The difference $128.71, is negligible, however.

6301 From the above balance he deducts the increase in the value of mains, services, meters, etc., as follows:

Value of mains, services, meters, etc., October 31st, 1905	$12,866,766.62
Appraised value, June, 1884	7,487,000 00
Less office furniture which he omits	70,000
The balance being an amount which deducted from the value Oct. 31, 1905	7,417,000.00

It shows an increase in this property to have been $5,449,766.62. Deducting this from the increase shown above, $9,095,647.62, he arrived at his increase in plants as $3,645,881. The actual increase in plants from November 11, 1884, to October 31, 1905, (exhibit 79), $3,904,937.31. The excess actual increase in plants over his figures being $259,056.31, made up as follows:

Value of this property November 11, 1884	$5,449,766.62	
Appraised in June, 1904 at	5,190,839.02	
Additions, June to November, 1904.	258,927.60	
Marks' error in real estate increase.	128.71	
		$259,056.31

which is the excess of the actual increase in plant over the figures which Marks showed.

Q. In other words he excludes the increase from June to November, 1904, in real estate?

A. That is the case, yes, sir.

On page 2365 he makes a statement purporting to give the value of plant as shown by Yalden's summaries from the books of the old companies. To the total value which he thus finds, $10,737,418.70 he adds an increase in plant as above, $3,645,881, getting a total of $14,385,299.70 (note that it should be $14,383,299.70).

6302 From this total deducts Mayer's estimate of the value of plant at 18th street taken by the city, $1,508,035; and the value of the entire 111th street plant as shown by the books of the Harlem Gas Light Company, alleging that it has been abandoned, $569,495.57. The total of these two items is $2,077,530.57, he deducts, leaving a remainder of $12,307,769.13, which he announces to be the "value of the actually operating and going manufacturing plants and holders of the Consolidated Gas Company."

Referring to the foregoing deductions, it is interesting to note with reference to the 18th street plant, that this plant is included in his summary of value in 1884 at $1,281,694.84 (See Yalden's summary, Senate document 47, page 674).

Q. And he deducts a value of $1,508,035 or more than the entire plant appears in the total from which he made the deduction, doesn't he?

A. Precisely, yes, sir. On page 84 of the printed testimony, Chief Bradley testified that there had been expended at this station for construction $424,173.09. The total valuation of Eighteenth Street plant in Marks' total of $14,385,299.70 is therefore $1,705,867.93. From this he deducts Mayer's estimate of the value of plant taken by the City, $1,508,035, leaving a balance of $197,832.93 as the value of the present plant at 18th Street included in his final amount of $12,307,769.13. Mayer values the present plant at $588,873 or three times the value arrived at by this process.

Q. In other words, he takes Mr. Mayer's value for the part excluded but wholly ignores Mr. Mayer's value as to the part that remains?

A. Yes, sir. Mr. Marks includes the 111th Street plant in his 1884 valuation at $569,495.57. The additions since 1884

6303 (to which Chief Bradley apparently did not testify) amount to $236,399.72, making the total amount at which this plant is included in Marks' total ($14,385,299.70) $805,895.29, from this he deducts as the value of plant abandoned, $569,495.57, leaving only the cost of the additions, $236,399.72, as the value of the present plant. Mayer values it at $1,039,910.

Q. Generally speaking, is it true that taking the original value of 1884 as to land and plant Mr. Marks deducts present valuation of land and plant and not the valuations at which those items entered into his 1884 total?

A. That was his method of computation.

Q. Very good. Proceed. Now, as to this 111th Street plant which

he deducts on the theory that it has been abandoned, has it in fact been abandoned?

A. No, it has never been abandoned. Besides being operated as a distributing station it is held in a reserve capacity, the manufacturing apparatus being in excellent condition, some of it never having been used. The City acquired the plant on but one block out of four, paying for it and for damages to the rest of the plant by reason of its removal the sum of $246,100, all of which was credited to plant account and operated to reduce the book value of additions to other parts of the plant to the net amount stated above, $236,399.72, which forms a part of the total net increase of $3,964,937.31, shown in Exhibit 79. It is obvious therefore, that as he adds only the net increase in plant to his 1884 valuation, the entire amount deducted by Marks, $569,495.57 must be added to his net value of existing plant in order to arrive at its present value even by his process.

The price allowed by the City for the plant condemned was not less than the value at which it was taken over at consolida-
6304 tion or acquired subsequently to consolidation.

Marks on page 2365 gives a summary of the value of real estate in 1884 as he finds it in the Yalden's summaries of the accounts of the old companies, the total being $5,054,014.88.

Although he accepts the increase in the value since 1884 of plant, mains, services, meters, etc., as shown by complainant's exhibits, he entirely disregards the increase in the value of real estate, $597,-918.28 to December 31, 1905, and deducts it (Page 2366) from the total increase shown in Exhibit 89, before proceeding with his calculations.

From his Yalden valuation he proceeds to deduct certain items aggregating $1,985,874.37, leaving as the present value of real estate $3,068,140.51. The items deducted are as follows:

Little Italy Park, 111th street and 112th street, Harlem . $365,000.00

But his total of $5,054,014.88 includes the entire real estate of the Harlem Company (Page 2365), of which that taken by the city forms only a small part at $158,899.

Q. That is less than half the amount he deducts?

A. Leaving $206,100.19 less than nothing at all as the value of the balance of the Harlem real estate valued by Mr. Wheelock at $1,227,500.

This deduction is made notwithstanding the fact that Marks had access to all the data necessary to completely inform himself on the subject. He must have procured from the city records the amount $365,000 awarded to the company for the real estate and plant condemned by the city. He could easily have ascertained that the award was divided between real estate, $118,900; plant, $246,100; total, $365,000.

He could, without any trouble, have identified the plot in
6305 question in the real estate schedule of the Harlem Company (Page 909) Senate Document 47, and ascertained that the land sold to the city for $118,900 was appraised in 1884 at $86,000.

By taking Yalden's value of the Harlem real estate, $158,899.81, and the appraised value in 1884, $754,000, he would have found that Yalden's value amounted to but 21% of the appraised value. Applying this factor to the appraised value, $86,000, of the land taken by the city, he would have found that the value at which this land was included in his total value of real estate was but $18,060, and he must have known that to deduct $365,000 for a parcel of real estate from a total in which that parcel was included at not more than $18,060 was sophistication of the rankest kind.

Mr. KIRBY: Oh, Mr. Master——

Mr. MATHEWSON: Sophistication is a word we did not coin. That is a word that came from Mr. Marks. He testified he got this figure from the City Record itself.

Mr. KIRBY: I must object.

Mr. MATHEWSON: Mr. Marks used this very term, and now the shoe pinches.

Mr. PAGE: It is aggravating to have a witness go ahead and draw deductions as to what another man should have done and might have done, and have him characterize what he has done as sophistication. The testimony of the witness does not pinch very much, I will say for Mr. Mathewson's benefit.

The MASTER: Well, gentlemen, as I have had occasion to say before, I do not like this idea of stump speeches made by witnesses.

I had occasion to criticise it several times on the part of the
6306 witnesses called by the defense, and it does not any more commend itself to me now, but some of these other experts managed to get a pretty free view on the record and I do not know exactly how or where I can stop Mr. Carter. If it is possible, Mr. Mathewson, to divide—if you have a manifold of that, and if you can bring out the facts by question and answer, and eliminate this summing up of features of it I think it would be very much better.

Mr. MATHEWSON: It will lose some force if I were to ask the questions; but as a matter of fact, the Senate document of 1884, Document No. 47, which Mr. Marks was using and which he had before him, and from which he made deductions as this witness shows, showed certain other things which Mr. Marks absolutely ignored.

The MASTER: You can show the fact.

Mr. MATHEWSON: And the witness has now consecutively shown that Mr. Marks made certain deductions from the real estate values. He is now proceeding to show that those deductions were utterly uncalled for, and the reason they were uncalled for——

The MASTER: That is all right, you are entitled to show that.

Mr. MATHEWSON: Yes; it is not argument, but entirely facts.

Mr. PAGE: You are entitled to show the facts, no question about that; but that Mr. Marks must have been wrong and that this is a sophistication pure and simple——

Mr. MATHEWSON: Was not that word used and the word "tricky" used by this same witness who is now being criticised? And
6307 if there is anything that is sophistication that is worse and ranker than this I would like to know where it is.

Mr. PAGE: Of course, if such was done, putting another witness on the stand to fall into the same error does not cure the original evil.

The WITNESS: Shall I proceed with respect to the next deduction?

Q. Let us take the next deduction, the parcel of land sold to the New Amsterdam Company.

A. His next deduction is for a parcel of land sold to the New Amsterdam Gas Company for $180,000 which was appraised in 1884 at $130,000. Here again we have the disparity between Yalden's figures and the appraised value of land. The valuation of 14th Street real estate included in the total of $5,054,014.88 amounts to $367,495 (see table Senate Document, 47 page 674, from which Marks got his total). It was appraised at $1,952,500. Yalden's value was about 19 per cent. of the appraised value. It is fair to assume, therefore, that Yalden's value and the value at which it is carried in Marks' statement, of the plot sold to the New Amsterdam Gas Company was not more than $24,700.

Q. That is the same proportion of the total, $180,000, is it?

A. Yes. I think it is obviously carried in Mr. Marks' total at $24,700, the amount of $180,000 is deducted for this plot.

Q. Take the next deduction for bulkheads at 21st Street.

A. The amount deducted was the amount awarded for the bulkheads condemned by the City, $247,858, and is approximately the amount at which all the bulkheads and the water rights at the station were carried in the books.

6308 Q. The next deductions were for bulkheads taken at the 18th Street station?

A. He values them partly by authority of a city expert at $1,193,-016.37. This he deducts from a total in which the entire value of the land and bulkheads at the 18th Street station is included at only $473,173.51 (see table Senate Document 47, page 675, from which he obtains his total value of Manhattan companies real estate).

Q. In other words, he deducts there something like $1,200,000 from a total in which the same property was carried at $473,173.51, which would give a minus quantity of how much in that case?

A. Exactly $719,842.86, which of course operated to reduce the already low value of the other property in his statement.

Q. Now, he refers to the sale to the Standard Gas Light Company, without giving the amount. What is the fact as to that?

A. This was a sale in September, 1905, of a parcel of land between 62d and 63d Streets west of Avenue A, which was appraised in 1884 at $118,600, and for which we received $178,078.

Q. That was credited to the real estate account, wasn't it?

A. The entire amount being credited to the real estate account. According to his valuation of the real estate there is a variation there of $2,583,792.65, being the difference between the total value in 1884 of $5,054,014.88, which he himself finds and adding the increase to which he always refers, $597,918.28, making a total value accord-

ing to his theory of $5,651,933.16, or an excess of the value he arrived at, $3,068,140.15, of $2,583,792.65.

Mr. KIRBY: It is quite impossible to take up the cross-examination on a matter of this kind until we have had an opportunity to read the record.

6309 Mr. MATHEWSON: If it is too fast say so and we will have the witness give the amount slowly.

The MASTER: Read it slowly.

The WITNESS: This entire testimony runs consecutively from the page to which is first referred (page 2366 of the printed testimony in this case).

Mr. Marks added his valuation as follows:

Land	$3,068,140.51
Manufacturing Plants and Holders	12,866,766.62
Mains	7,700,151.03
Services	1,212,071.09
Metres, etc., Less Scows and Gas Stoves	3,495,108.58
Total	$28,342,237.83

There should be added for the items which he deducted which are obviously required in the business:

Scows	$19,816.15	
Gas Stoves	287,619.77	
		$307,435.92
There should be added for real estate as previously noted		2,583,792.65
And on the Harlem plant should be added, as established		569,495.57
And for errors in his increase in plant account		259,056.31
Making a Total of		$32,062,018.28

Roughly estimated, about 45% of total plant at 18th street was taken by the city, and that percentage of the amount at which this plant is included in Mr. Marks' total, $473,173.51 or $212,928.07,

6310 would have to be deducted, leaving the present value of the plant and property excluding cash accounts receivable and material and supplies, according to Mr. Marks' theory, $31,849,090.21.

Q. And would this include any working capital or any part of the Astoria investment?

A. No, sir.

Q. Or any franchises or anything of that sort?

A. No, sir.

Q. And it is made up, correcting these errors, upon his theory with the exception of the errors which you have noted?

A. Precisely.

Q. In Mr. Yalden's table he finds value of real estate at 14th street, or rather he puts down figures at which the 14th street real

estate is carried and the 21st street real estate. What is the amount at which the 14th street real estate is carried?

A. Fourteenth street, $367,495, consisting of 228 lots, the average value per lot $1,622.34 per lot.

Q. Taking the 21st street station which is on the same side of the city, and his valuation is what?

A. $1,857,000 for 225 lots, a value of $8,253.33 per lot; about five times as great as the 14th street valuation per lot.

Q. Now the 14th and 18th street plants were both plants of the Manhattan Company and both coal -as plants, were they not?

A. Yes, sir.

Q. Does there appear to be any contrast between the Yalden valuation of buildings in the two plants?

A. That is indicated by the table from which the value as given in Mr. Marks' table is obtained, Senate document 47, page 674, the buildings at 14th street are included at $75,197.54 and at 18th street, $372,621.46.

Q. And were the plants of the same capacity?

A. Identical at that time, yes, sir; three and one half millions.

6311 Q. And so far as your observation goes would they require substantially the same equipment and buildings?

A. No appreciable difference, Mr. Mathewson, according to my information.

Q. Is there any way in which you can reconcile the $75,000 for one plant and the $372,000 for the other except the way in which they were arbitrarily carried on the books of the company.

A. They apparently were carried at that value on the books of the company, but the inference is that in writing down the cost of their property the Manhattan Company did not attempt to maintain any parity between the values of these properties.

Mr. PAGE: Has the witness any knowledge of the facts from which he is drawing inferences?

Mr. MATHEWSON: He has examined Senate document 47, very carefully, which your witness used, and from which they pointed out their conclusions.

Mr. PAGE: He is giving what the companies must have done on their books.

The MASTER: He was asked if there was any way in which he could account for it and I suppose in the absence of any facts, he being an officer of the company, we might take his inference for what it is worth.

Mr. PAGE: These inferences are of some company he was not an officer of, and where he had no charge of the books.

Q. Mr. Marks referred to the buildings of the various plants of the Consolidated Gas Company as appraised in 1884, and compared them with Mr. Mayer's appraisal of buildings in 1906, and
6312 showed the difference between the two. Didn't Mr. Rowland in 1884, so far as the record shows, include the foundations of apparatus in his estimate of buildings?

A. No, he did not. It was not his rule to do so. In some small

buildings apparently he did, but in the large buildings where the apparatus was important, as generators and purifiers, and apparatus of that character, the foundations were included in the apparatus.

Q. They are appraised, are they not, separately, here in the schedule?

A. Yes, sir.

Q. Take the 21st street building for an example which is compared by Mr. Marks in which Mr. Marks compared Mr. Mayer's appraisal to the appraisal of Mr. Rowland; is that building today the same as it was in 1884?

A. No, sir, in no respect. Are you referring to some of the buildings, or the buildings generally at the station?

Q. Well, the buildings generally at that station, the large buildings.

Mr. PAGE: Which is it, the large buildings or the buildings generally?

A. I thought perhaps you were referring to one building given here on 21st street and 1st avenue, which Mr. Rowland valued at $5,000, stating that the building was out of use and the only value he indicated was the value of the foundation. That building is still in use, used as a store for stoves and meters and a portion of the meter repair plant is in it, and it is a perfectly sound substantial building, has had a great deal of money spent upon it, and was unquestionably worth a great deal more in 1884 than Rowland valued it at, unquestionably worth a great deal more than the $5,000 he valued it at that time.

6313 Q. Take the generator building at 21st street, hasn't an additional story been added to that or the roof been raised?

A. The building had to be altered with respect to the roof and elevation to accommodate the new generating apparatus that was installed there in 1891; a new roof was put on the building, and the walls were renewed and raised.

Q. Now, quite aside from the question as to the inclusion of the foundation of apparatus in this building by Mr. Mayer, and the fact Mr. Rowland has done so, is it possible to compare the two buildings today on the assumption that they are the same buildings?

A. In no respect.

Q. As to the other buildings of the company at its various plants, without going into detail, are those buildings now exactly as they were in 1884, or have expenditures been made on them in general?

A. Very large expenditures either in the shape of repair or the shape of renewal and replacements that have resulted in the buildings probably being in better condition now, a great deal, than they were in 1884.

Q. And the amount which has been expended according to exhibit 79 upon the buildings and their contents appears under the heading of plants, doesn't it?

A. Yes, sir.

Q. And shows for the repairs alone something like six million dollars?

A. Yes, sir, over six million dollars.

Q. And expenditures for construction of nearly four million?
A. Yes, sir.
Q. In addition to expenditures for renewals and replacement?
A. That is the case.
Q. Mr. Marks referred to the works from 1894 to 1899 as "tottering to their final collapse," to use his expression. You were
6314 thoroughly familiar with the works during that period?
A. Yes, sir.
Q. Were the works producing gas during that period in increasing quantities?
A. The 14th street plant produced in 1884 three and one-half million; in 1905 it sent out very close to five million; so that the capacity has not only been maintained but it has been substantially increased.
Q. It is true that from 1900 on a certain type of Lowe apparatus was substituted with another type, isn't it?
A. Not at 14th street.
Q. No, but at the water gas stations?
A. Yes, sir, at the water gas stations for other types the Lowe type of apparatus has been substituted.
Q. Is it true during that period the plants or any of them were tottering toward their final or any other collapse.
A. Not true with respect to the plants or any portion of the plants.
Q. Mr. Marks also referred to the great field that the company had in supplying gas in Queens and Brooklyn. Do you know of any franchise that the Consolidated Gas Company has to supply gas in the Borough of Brooklyn?
A. They have none that I ever heard of, no, sir.
Q. Or any in the Borough of Queens?
A. No, sir.
Q. In reference to Prof. Bemis' testimony, he made a comparison between the 14th street station and the coal gas at the Central Union station. Have you read that comparison?
A. Yes, sir.
Q. And have you made up a table showing the errors into which he fell?
A. I have done so, but I would like to explain in reference to the table I have made up that the difference shown by comparing the total cost of coal gas at these two stations is made up of variations in the cost of the items entering into the total which are no indication of efficiency but are due to differences in the conditions be-
6315 yond the control of either company.
In the matter of coke, for example, it has been shown that the conditions under which the Central Union Company deals with this commodity are so favorable as to create a variation of nearly ten cents per thousand cubic feet of gas made.
The fact that the Central Union Company is not obliged for the purpose of equalizing pressure to maintain distributing stations, affects their cost favorably as compared with the situation in New York, the 14th street station having to bear its share of the cost of

the maintenance of the various distributing stations of the Consolidated Company.

The fact that the coke delivered from the 14th street station to the Water Gas Stations for use in the generators has to be carted some distance at the 14th street station operates to increase the cost at the 14th street station as compared with the Central Union station, where the Water Gas Plant is adjacent to the Coal Gas Plant.

The fact that in the case of the 14th street station the works have been cut off from the water front by the marginal street, operates to considerably increase the cost of the labor and cartage of coal and coke.

The fact that the Central Union Coal Gas Station is equipped with inclined retorts and recuperative coal gas branches and the latest labor-saving types of coal and coke handling apparatus, operates to reduce the cost to the Central Union Company,—though such advantage, while appearing very favorable in a comparison of cost figures, is offset to a very considerable degree by the additional investment and the consequent increase in the Fixed Charges which does not appear in any statement of cost.

6316 A fair comparison between the cost of manufacturing gas at the 14th street station and at the Central Union's Station, therefore, could only be made by first eliminating from the cost at both stations certain items which are in no respect comparable.

For reasons stated above, the proceeds of the sale of coke should be eliminated, as well as the cost of labor and cartage of both coal and coke.

The item of distribution should be eliminated from the cost at both stations, for the reasons given.

As the 14th street cost includes the oil gas made for the 14th street station at the 21st street station, this should be eliminated before comparing the cost of the coal gas of the Central Union station.

During the year 1905, a small quantity of gas oil was used experimentally in the Central Union Coal Gas Plant, and appears as an item of cost in the statement of the Central Union Company. This should be eliminated to place both stations upon an equal footing.

As the quantity of gas manufactured with the small quantity of oil used in the Coal Gas plant of the Central Union Company is not shown in any of their statements—and as a matter of fact is unknown—it has been estimated upon the basis of the oil gas made pr. gallon of oil used at 21st street for 14th street, about 50 cubic feet per gallon. The cost of labor and repairs in connection with the oil gas made in the Coal Gas Plant of the Central Union Company is not known, and has, therefore, been estimated—with respect to the labor, upon the basis of the cost of labor per thousand cubic feet of oil gas made at 21st street for 14th street; with respect to the repairs,

6317 the cost of repairs has been estimated upon the basis of the cost per thousand of all the repairs to coal gas plant at the Central Union Station.

The table is as follows:

14TH STREET STATION.

Statement showing cost of Coal Gas after eliminating the residual coke, cost of Cartage and Labor handling—cost of Station distribution, and Oil Gas, nominal year ending October 31st, 1905:

	See printed testimony G. C.	Cubic feet.	Amount.	Per M C. F. made.
Total Cost.	2117/2120	1,528,773,000	$576,429.56	37.70
Add Coke.....	2118	.....	178,527.11	.....
			$754,956.67	
Deduct:				
Cartage and Handling.....(p. 2117, $32,688.05) (p. 2118, 34,821.03)			$67,509.08	
Distribution.....(p. 2120).....		.....	20,387.71	
			$87,896.79	
			$667,059.88	
Deduct Oil Gas: (p. 2145).....		168,489,000		
G. C. Page 2117—Coal.....		.....	$48.25	
2119—Coke.....		.....	7.90	
2119—Gas Oil.....		.....	137,602.63	
2119—Labor		.....	9,603.51	
			$147,262.29	
		1,360,284,000	$519,797.59	38.21

6318 CENTRAL UNION GAS COMPANY.

Statement showing cost of Coal Gas after eliminating the residual coke, cost of Cartage and Labor Handling, cost of Station distribution, and Oil Gas, nominal year ending October 31st, 1905:

	See printed Testimony G. C.	Cubic feet.	Amount.	Per M C. F. made.
Total Cost	p. 132	670,518,000	$131,249.46	19.58
Add Coke	212-14-15	.....	154,817.63	23.09
			$286,067.09	42.67
Deduct:				
Cartage and Handling	132	.....	$23,345.12	03.48
Distribution	132	.....	1,869.70	00.28
			$25,214.82	03.76
			$260,852.27	38.91
(*a*) Deduct Gas Oil	.....	10,515,437		
Oil Used	p. 132	.....	$8,501.58	
(*b*) Oil Gas, Labor	.....	.....	5,331.32	
(*c*) Oil Gas, Repairs	.....	.....	5,131.53	
			$18,964.43	
Total		660,002,563	$241,887.84	36.65

Excess—14th Street cost over Central Union cost=.0156. c. for M.c.f made.

(*a*) The quantity of Oil Gas made is estimated on the basis of the make per gallon at 21st Street for 14th Street, the process being identical. 21st Street make (p. 2145) 168,489,000 c.f. Gallons oil used (p. 2119) 3,371,782 gals. Gas made per gallon 49.97 c.f.

Gas oil used at Central Union (p. 132) 210,435 gallons x
6319 49.97 c.f. per gallon = 10,515,437 c.f.

(*b*) The labor on Oil Gas is calculated on the basis of the cost of Oil Gas labor at 21st Street. 21st Street labor (p. 2119) $9,603.51, makes 168,489,000 c.f. Cost per M. 5.07c. Oil Gas make at Central Union 10,515,437 c.f. @ 5.07c. = $5,331.32.

(*c*) Oil Gas repairs are calculated on the cost of repairs on all gas made at Central Union, 4.88c. (p. 132) 10,515,437 x 4.88c. = $5,-131.53.

Less item of gas purchased $460.50 @ 00.06c. per M.

Q. The table that you have prepared and which you now show me shows the cost of the coal gas at the 14th street station, as compared with the cost at the Central Union station, eliminating the items of

distribution, oil gas and labor, handling and coke which you have stated were not comparable?

A. That was the case, yes, sir; and I get a total cost at 14th street of 38.21 per thousand cubic feet of coal gas made and at the Central Union a cost of 36.65 cents per thousand cubic feet of coal gas made, a difference of 1.56 cents per thousand cubic feet made.

Q. Now as to that, it was stated that the Central Union installation was more expensive and there would be a larger amount required for the return on investment?

A. That is the case. It was a question whether the additional fixed charges in use at the Central Union for such apparatus as in use at 14th street station would not amount to considerable more than the difference above referred to of 1.56 per thousand cubic feet of coal gas made.

Q. Has the Central Union plant any marginal street between it and the water?

A. No, sir.

6320 Q. So that supplies were delivered directly into its plant?

A. Everything directly into its plant.

Q. And having but a single station there is no station expense, is there?

A. No distributing station distribution to be added to their cost, therefore the item of distribution has been eliminated from both.

Q. The special item in manufacture referred to known as distributing expense between distributing stations before the gas is sent out, in other words, not a distribution expense at all which comes under the general heading of distribution expense?

A. The 14th street distributing expense includes the cost of the distributing station expense, therefore to put both stations on an equal footing the distribution expense has been eliminated from both costs.

Q. Have you prepared another tabulation showing the comparison between the Central Union cost and the Consolidated Gas Company cost, taking the entire output?

A. Yes, sir, I made a comparison for the nominal year ending October 31st, 1905, both statements being in the exhibit and adjusting the Central Union cost to a candle power corresponding to that candle power produced by the Consolidated Company, I get a cost to Consolidated Company of 32.17 cents per thousand and the Central Union 31.34 cents per thousand, a difference of only .83 of a cent per thousand between the cost of the two companies, the Consolidated Company and the Central Union Company. The table is as follows:

6321 COMPARISON BETWEEN THE COST OF MANUFACTURE, CONSOLIDATED COMPANY, AS SHOWN BY EXHIBIT 93 OF PRESENT CASE, AND CENTRAL UNION GAS COMPANY, AS SHOWN BY EXHIBIT 20 OF PRESENT CASE, FOR THE NOMINAL YEAR ENDING OCTOBER 31st, 1905.

CONSOLIDATED GAS COMPANY:

Total Station Cost—Exhibit 93		32.68c.
Deduct for Purposes of Comparison:		
Experiments	.03c.	
Depreciation	.48c.	.51c.
Bal. (25.07c.p.@1.28 per candle)		32.17c.

CENTRAL UNION GAS COMPANY:

Total Station Cost—Exhibit 20 C. U. G. C.		26.57c.
Add for purposes of comparison:		
Expense	.59c.	
Distribution	.42c.	
	1.01c.	
Less gas bought	.06c.	.95c.
Total (22.08 c. p.@1.25c. per candle)		27.52c.

CONSOLIDATED CO'S COST:

(c. p. gas, 25.07) as above	32.17c.

CENTRAL UNION CO.'S COST:

Adjusted to 25.07 c.p.@1.25	31.34c.

EXCESS:

Consolidated over Central Union Cost	0.83c.

6322 Q. Now it appears in evidence that up to the 1st day of July, 1905, that is during the eight months of the year for which you have made the comparison between the Central Union and the Consolidated, there was no inspection for candle power in the Borough of the Bronx where the Central Union operated?

A. That was the case.

Q. Did you make investigation and examination in order to determine how much their candle power fell below that maintained by the Consolidated?

Mr. BURR: Objected to as incompetent, immaterial and irrelevant; we are not investigating the candle power of the Central Union.

Question allowed. Exception.

A. We have a statement of their candle power every month, their station candle power in connection with the statements to us of gas made for us under the agency agreement, and by that means we know that prior to July 1st, 1905, with the average station candle power shown it would be impossible for them to deliver on the district anything like 20 candles.

Q. And as a matter of fact their station candle power showed considerably less than the Consolidated station candle power?

A. Very much less, yes, sir.

Q. When you make this comparison, say a difference of only .83 of one cent to the cost of gas for the nominal year ending October 31st, 1905, did you make an adjustment of candle power for the difference which you found to exist?

A. I did, which the record showed to exist.

Q. And do you not recall that while prior to July 1st,
6323 1905, the gas which was delivered to you by the Central Union Gas Company under agency agreement appeared at a very much less cost than that which you received from the Standard or the New Amsterdam or the Mutual, but after July 1st, 1905, when the new candle power went into effect their gas rose to substantially the other companies?

A. Yes, sir.

Q. Taking therefore the figures of the Central Union and of the Consolidated as you have presented them and eliminating the items in which it is impossible to make comparison, is there any substantial difference in cost?

A. There is none; no, sir.

Q. Quite aside from the question as to the greater return required by the Central Union on its investment?

A. Aside from that.

Q. Now you heard Professor Bemis's testimony, did you not, in which he found a difference of only .98 of a cent in coke as between the receipts of the 14th and the Central Union plant?

A. .98 of a cent, yes, sir. I have looked over that testimony very carefully.

Q. Did he fall into any errors in making that computation and is that conclusion of his correct?

A. There were many errors and the conclusions were incorrect.

Q. Now, will you state as briefly as you can what the errors were?

A. The last calculation Mr. Bemis made in arriving at this result was to divide what he computed to be the variation in dollars between the value of the coke at 14th Street and 42d Street station, and at the Central Union station, $27,464.48, into the total make of the 14th Street and 42d Street station, including the oil gas made at
21st Street for 14th Street, which had nothing whatever to do
6324 with it, 2,809,586,000 cubic feet and getting the result of 1.01 cents per thousand cubic feet of gas made. In this calculation he erred, either by reversing his factors in dividing, or by dividing by the gas sold instead of made. He should, of course, have divided his $27,464.48 by the quantity made which would have given him .98 of a cent per thousand cubic feet, instead of 1.01 cents per thousand cubic feet made. The whole method, however, was

erroneous from any standpoint. Mr. Bemis took the coke used in the water gas plant of the Central Union Company, 23,155,050 pounds, or about 15 per cent. of the entire output of coke, and reducing it to short tons, got 11,577.5 tons. This he did without ascertaining whether the price per ton at which the coke was used at the Consolidated water gas stations was based on long tons or on short tons. By using short tons in the Central Union calculation, the result would be a larger number of tons, and a smaller average price per ton than if long tons were used, and thereby the gap between the price per ton at the Central Union and the Consolidated stations would be reduced, no matter how the Consolidated may be calculated. He gets an average price of $3.23 per short ton. After noting, according to his own statement, that the rate per ton of coke used at the Consolidated water gas station, was as follows:

At 21st Street	$3.24
At 44th Street	3.35
At 99th Street	1.45

When the average price received at 14th Street for all the coke produced was $3.08 and at 42d Street $2.90 a long ton, there was no evidence on which he could assume that the price at which
6325 he figured the 15 per cent. of the Central Union coke used in their water gas plant was identical with the price which they received on the other 85 per cent. of their coke. Nevertheless, this was assumed and the following results obtained. The average price per ton at 14th Street being $3.08 against $3.23 at the Central Union the excess of the Central Union over 14th Street was 15 cents per ton. The price at 42d Street being $2.90 compared with $3.23 at the Central Union gave a variation of 33 cents a ton. Mr. Bemis proceeds to multiply the difference between 14th Street and Central Union, 15 cents, by all the coke produced at 14th Street, and to multiply the difference between the Central Union and the 42d Street station, 33 cents, by all the coke produced at 42d Street, which gives him the figures shown at page 2896 of his testimony. Thus,

14th Street	$8,676.61
42d Street	18,787.87
A total of	$27,464.48

Notwithstanding the fact that the make accounted for at both stations, 14th Street and 42d Street, includes at 14th Street a great deal of oil gas made at 21st Street, and at 42d Street a great deal of oil gas produced at that station, which puts them absolutely out of comparison with the Central Union station, he adds them together and gets 2,809,586,000 cubic feet. And after having his attention drawn to his errors, divides the amount by the quantity and gets .98 of a cent per thousand cubic feet. This is referred to repeatedly as "a difference of a cent in the coke item," of the cost at the three stations, page 2987. Again: "There is no certainty that there is any difference at all," and again "the coke item does not take up
6326 more than one cent of that eleven cents," page 2988, referring to the difference between the 14th and 42d Street stations and

the Central Union. Later, in reply to an interrogation by Mr. Mathewson, at page 2989, "does that take out the one cent difference for coke?" He answered, "No, because it was not clear that it should be taken out." Later, according to Mr. Bemis' testimony he undertook to establish his fairness by showing that the price at which coke was used in the Central Union water gas manufacture was practically the same as the price received for coke sold, less cartage. But it was apparent that there was no cartage on coke used in water gas manufactured at the Central Union plant, and it was apparent that there was cartage on coke used in water gas manufactured at the Consolidated station which was paid by the coal gas stations. This should have been deducted before making any comparison.

Q. In other words, one represented coke in which there was cartage, and the other represented coke in which there was no cartage?

A. Exactly. In the Central Union case they were supplying coke to a water gas plant which was next door to their coal gas plant, and in the case of the Consolidated they were delivering their coke to water gas stations more or less remote from the coal gas plant. It gave an entirely misleading result, after getting a difference between the coke receipts, in dollars and cents, to divide it by the sum of oil gas made at 21st Street for 14th Street and the oil gas made at 42d Street, and the coal gas made at both stations, when it appeared that there was relatively little oil gas made at the Central Union plant.

Q. In other words, the oil gas was included all the way around, was it?

6327 A. The oil gas was included all the way around, yes, sir. And the result was used to produce the difference in the item of coke receipts.

Q. Instead of being one cent difference, what is the difference, and how is it obtained in the price of coke?

A. Well, on cross-examination Mr. Bemis made a calculation which showed that the difference in the coke item was 9.97 cents per thousand cubic feet of coal gas made.

Q. That was on cross-examination when I called his attention to certain figures, was it?

A. Yes, sir, and then Mr. Bemis injected the element of cartage and labor into the proposition, and I have made a table which indicates that after deducting the cartage and labor the difference is still 8.69 cents per thousand cubic feet of coal gas made between the Consolidated coal gas plant and the Central Union coal gas plant.

Q. Did you find that Mr. Bemis took into consideration the screenings in his computation, or the fact that there were screenings?

A. No. There were some figures made tending to show that there was little difference between the price at which the Consolidated Company's coke was used in the water gas manufacture and the average price of all coke produced, and again between the water gas figures and the selling price, as shown in Exhibit J-414-A, and here he disregards the screenings and deals with coke only, comparing $2.25 per load for water gas stations with $2.25 average selling price, disregarding the fact that out of 29,160.04 loads used at the water gas plants, but five per cent. were screenings, while of the loads sold

21 per cent. were screenings, which sold for 96 cents per load, and the comparison, instead of being between $2.25 and $2.25 as he states, is between $2.19 and $.96.

6328 Q. Have you your computation showing the actual difference, even deducting labor and cartage of 8.69 as between the Central Union and the 14th Street plant?

A. Yes. The computation showing the variation after deducting cartage and labor of 8.69 cents per thousand cubic feet is as follows:

COKE OPERATIONS, YEAR ENDING OCTOBER 31, 1905.

CENTRAL UNION GAS CO.

	Mr. Bemis.	Central Union Statement.	
Sales	$114,663.76	$114,810.02	(p. 215)
W. G.	37,281.56	34,177.41	(p. 212)
District Boilers	.....	3,204.15	(p. 212)
Coal Gas	.....	2,626.05	(p. 214)
Total	$151,945.32	$154,817.63	(p. 214)
States it to be	$152,045.32		

(Note that to this point not one of Mr. Bemis's figures is correct.)

Labor and cartage	20,935.91	20,935.91
	$131,109.41	$133,881.72
Per M. cu. ft. made		20.29c.

CONSOLIDATED GAS COMPANY, AFTER DEDUCTING LABOR AND CARTAGE.

14th Street	$143,706.08	
42nd Street	150,765.49	$294,471.57
Per M. cu. ft. made		11.60c.

Excess Central Union over Consolidated, 8.69c. per M. cu. ft. made.

6329 Q. And without deducting cartage and labor it would be 9.97 cents per thousand, would it not?

A. Yes.

Q. Now, Professor Bemis stated that it makes a difference of only 3 cents, or actually 3.75 cents per hundred pounds, and that it is not unreasonable in view of the fact that the coke had to be carted from the coal gas to the water gas stations. The difference does not look as much on one hundred pounds, but what does it amount to when applied to the 250—what is the amount?

A. 257,000,000 pounds, which the Consolidated Company sold, the difference between the value of the coke at the 14th Street sta-

tion, of 3.75 cents per hundred pounds amounts to over $95,000, or about three and three-quarters cents per thousand cubic feet of coal gas made by the Consolidated Gas Company.

Q. Now, the entire cost of cartage from the coal gas to the water gas stations aggregated how much?

A. The entire cost of cartage aggregated but $12,360.66.

Q. But the variation in that regard is one of principle rather than of great amount?

A. Yes, sir, it was purely one of principle, I think.

Q. Now, Professor Bemis in his testimony draws an analogy between deducting the residuals such as receipts from coke, ammonia and tar, and the deduction of miscellaneous income. Is there such an analogy in your judgment?

A. None such as Mr. Bemis claims. The net cost of gas manufacture logically takes out the proceeds of the sales of residuals. But neither from an operating nor from a commercial standpoint can the expenses of distribution which are actual and permanent entities in the business, be reduced by deducting from them the income
6330 from the rental of stoves which may be sold outright at any time, and which every customer has the option of buying at a nominal price, the policy of this company being ultimately to have consumers own their own stoves, or the income from the rental of such real estate as at the moment the company may chance to own and have on rental, as for example, real estate which has been purchased for extension of plant, but temporarily rented; or acquired to avoid damage suits, as the 21st street explosion case, and rented pending the company's finding a market for it. In manufacturing gas we have residuals and they are part of the process.

Q. In other words so far as your residuals of coke, tar and ammonia are concerned, are they not a necessary part of the manufacture of gas, you are bound to get them if you manufacture gas?

A. You are bound to get residuals if you manufacture gas, in some form or another.

Q. They are part of the process?

A. Yes, sir.

Q. Does the same thing apply to the receipts from gas stove rentals or other rentals of that kind?

A. A great many companies have nothing of the sort, neither stove rent nor real estate rent is an item; it is simply incidental to the conditions at the time, and therefore, in my judgment such deductions instead of being "much simpler," as suggested on page 3006, would give misleading results. They would not change the facts and the distributing expenses would go on right after the income of the stoves and real estate had passed into history. There would appear to be an increase in distributing expenses which would not exist at all in fact.

Q. Professor Bemis at page 3063 to 3072 of his testimony referred to the item of 10.89 for repairs and renewals for the twenty
6331 years, and gives a reason for his exclusion of three cents per thousand feet for contingent expense reserve fund, which he allowed before the Gas Commission and he bases this change on the

assumption that the company's plant has appreciated, as he puts it, about $13,000,000. Now, that appreciation to which he refers relates or is due to what, practically?

A. The appreciation that he finds is not the result of expenditures for repairs and renewals, but to the increase in the value of the land, the increase in the value of the materials of which our property is constructed, the increase in the cost of labor that would be employed in their reproduction, and reconstruction, and the greatly increased cost of laying mains and services due to high grade and expensive pavements.

Q. It is due practically, if not almost wholly to the increase in the value of land and the increase in the value of mains and services due to change of pavement?

A. That enters very largely into the result.

Q. And have any receipts from consumers gone in to produce that increase at all?

A. None, no sir.

Q. In other words, the plant has not been built up out of the returns from the consumers of gas?

A. No, sir. In connection with that conclusion of Mr. Bemis the table made upon pages 3063 and 3064 and 3065 of his testimony, indicates an error there, of a million dollars, and another error in the computation of the rate per thousand cubic feet of gas sold since 1884.

Q. In other words, he makes a certain computation of the number of cents per thousand it would make if we divided the appreciation of the value of our land, mains and services by the output of gas, does he not?

6332 A. Well, he uses the output of gas for twenty years as a factor, but the balance which he reaches, $4,676,497.58, which should be $3,676,497.58, is the difference between the increase which he finds in the value of the property as appraised in 1905 over the plant in 1884, he finds an increase of $23,409,000, in round figures, and deducting from that the additions shown on Exhibit 79, $9,693,565, he gets a balance of $13,716,000, and deducting that——

Q. That $13,716,000 is what he calls the appreciation of property which is due substantially to the increase in the value of real estate and the increase in value of mains and services?

A. Over and above the expenditures of the company.

Q. And he deducts that from the total expenditures for renewals and repairs?

A. For renewals and repairs $17,392,000 and gets according to this testimony $4,676,000, actually $3,676,000.

Q. In other words his subtraction results in an error of about a million dollars, exactly a million dollars?

A. Yes, sir, and a rate per thousand of 3.46 cents, which I am unable to obtain by using any figures of sales——

Q. In other words, taking either the remainder which he actually got, or the remainder which he should have got, which differed

a million dollars from that, and dividing by any amount of gas, is it possible to get the 3.46 cents which he assumed?

A. No, it is not.

Q. Furthermore in making that assumption and in arriving at that result even on Mr. Bemis' theory, is it not necessary for him to get his depreciation, to accept the valuations of property and plant which the company has put on them?

A. Absolutely.

Q. And he does so in making the computation, does he not?

A. Yes, sir.

6333 Q. You cannot on any theory get any such result without assuming those valuations, can you?

A. No, the theory on which Mr. Bemis excludes any of the 10.89 cents involves the acceptance of the appraisals of the company's property by its own experts.

Mr. PAGE: I merely wish to suggest that the relative duties of counsel and witness seem to have been changed; the counsel is testifying and the witness is summing up the case.

Mr. BURR: That has been continuous for months, Senator.

Q. Now, as a matter of fact, Mr. Carter, is there anything in the situation that you know of or anything in the facts which appear by the testimony which would make an inclusion of three cents for a contingent fund proper at the time of the testimony before the Gas Commission and exclude the three cents at this time?

A. Nothing whatever.

Q. No change in circumstances whatever at all?

A. No, sir.

Q. Now, Mr. Bemis also testified as to land values without going into details. How did you find his method compared with the method of Mr. Marks, which you have already pointed out to be erroneous?

A. On page 3046 Mr. Bemis starts with Yalden's valuation of land and deducts, as Mr. Marks did, the alleged valuation of certain land sold or taken by the city aggregating $1,585,874.37. Whatever the company received for land which it sold was credited to its plant and property account, and operated to reduce the net increase from 1884 to October 31st, 1905, $9,693,565.90, which Mr. Bemis

6334 adds to Yalden's valuation in 1884, and such deduction having already been made, Mr. Bemis' deduction operates to take out this value twice over.

Q. It had already been deducted, and Mr. Bemis deducted it again, did he?

A. Such is the case, yes, sir. Furthermore——

Q. And was Professor Bemis's deduction of real estate at 18th Street, for instance, from the total deduction at the value at which that real estate was carried in the total or the value at the present time, which was several times the original value?

A. The value at the present time, several times the value at which it is included in his total.

Q. Did you find any inaccuracy of Professor Bemis in his assumption of the proportions of oil used?

A. Why there was, Professor Bemis made a misstatement with respect to the proportions of low grade and high grade oil used by the Consolidated Gas Company in the calendar year 1905, stating that it was——

Q. He stated what proportion of the high grade oil was used?

A. 16% of the high grade oil.

Q. As a matter of fact what proportion actually was used?

A. 25%, slightly over.

Q. And he made his computations and assumptions on the theory of the 16%, did he?

A. That is the case, yes, sir.

Q. Now he also refers to the fact that the services are less in number than in 1885. What is the explanation of that? There seems to be a small decrease in the number of services?

A. The change in the character of the structures or buildings which the company supplies; not infrequently a large structure takes the place of several small ones, resulting in the abandonment of several small services and substituting of one large one.

6335 Q. Does the substitution of large buildings covering many lots for smaller buildings affect the number of services?

A. Yes, sir, it decidedly does.

Q. It reduces them?

A. Yes, sir.

Q. How about the size of the services?

A. The size of course would increase very considerably.

Q. So that in spite of the reduction in the number, the increase in the size has resulted, has it not, in the increase of about $177,000 in the capital account for services since 1884?

A. That is the case, yes, sir.

Q. Now, Professor Bemis also, in dealing with working capital which the company would require, allowed one million dollars, and stated that about two million dollars more, which would make up a total of three million dollars, might be computed by assuming that the two million dollars, or that some two million dollars due from consumers of gas, was in the nature of a surplus. Is that two million dollars in the nature of a surplus in anyway?

A. In no way in the nature of a surplus, no, sir. It represents absolutely an appropriation of capital in some form or other.

Q. So that assuming a three million dollar working capital, as I understood Professor Bemis to do, no part of it could be made up of those accounts, could it, two million dollars of accounts receivable?

A. No.

Q. Is it treated as a surplus?

A. No, I don't know just exactly how he uses the term, or how he is able to construe that asset as representing a surplus.

Q. The question is whether you are able to?

A. I am not able to in any manner or shape.

At 1:05 P. M. adjourned to 2:15 P. M.

6336 After Recess.

ROBERT A. CARTER resumed.

By Mr. MATHEWSON:

Q. Mr. Carter, have you read Mr. Hall's testimony?

A. Yes, sir.

Q. And the long paper, City's Exhibit 87, which is in evidence?

A. I have, yes, sir.

Q. Now, the table in this exhibit or report which I will refer to as Marwick & Mitchell's report, perhaps, on page 1433 of the exhibits in this case, states a certain amount in the gas holders of the company, which Mr. Hall takes as his starting point in the computation of gas consumption and gas on hand. Is the amount which he states on hand in the holders, January 1st, 1905, 26,552,000 cubic feet correct?

A. No, sir, it is not correct?

Q. What does he omit?

A. He omits the gas on hand at the 18th Street station.

Q. What items in that exhibit as appearing on page 1433 are therefore incorrect?

A. The statement of the gas in the holder on January 1st, 1905, the total gas to be accounted for, the total gas accounted for and the gas unaccounted for are all incorrect.

Q. And does that error at the outset affect his computations and figures all the way through as to gas on hand and items of consumption?

A. Yes, sir, the tables throughout, to the extent of the error arising from the omission of the quantity on hand at the 18th Street station.

Q. Now, on page 4478, Mr. Hall states that the table in Marwick & Mitchell's report, page 1490 of the exhibit, purporting to show gas on hand manufactured, purchased, sold to consumers and
6337 balance on hand, indicated that during the five months ending October 31, 1905, that the company sold 421,000,000 feet in excess of the quantity made by the company and made for the company under the agency agreements during that period. Did the company in fact sell that quantity of feet in excess of the quantity manufactured and received?

A. No.

Q. Did they sell any amount in excess of the amount manufactured and received?

A. They did not, no, sir.

Q. What percentage did they make and receive under the agency agreements for those five months more than they sold?

A. The gas made by the company and for the company under the agency agreements, taking into account the variation in the quantity actually on hand, June 1st, and October 31st, exceeded the sales for the five months in question to the extent of 86,521,346 feet, or 1.82 per cent.

Q. Were these facts shown in the books to which Mr. Hall had access?

A. The facts were shown in the books to which Mr. Hall had access.

Q. Now, Mr. Hall added that this assumed excess of sales over make of 421,000,000 feet which you say was incorrect was over half the total sales of either July and August, and that he was unable to obtain any explanation for it. Did he ask you for any explanation for his apparent figures?

A. No, sir, none whatever.

Q. Would it have been easy to have made it if he had asked you?

A. Very easily pointed out, that he had made an error of over 500,000,000 cubic feet of gas in his statement.

Q. Now, as a matter of fact, instead of the sales attributed to any one month exceeding the gas made and the gas received by
6338 the Consolidated Gas Company for four successive months, such apparent excess occurred in how many months?

A. But two.

Q. And those months were?

A. The months of June and July.

Q. Now, will you state whether that excess was large or small and how it could be accounted for?

A. I have a table, Mr. Mathewson, that it might be well to put in evidence.

Q. Very good. Now, did you make copies of them?

A. Yes, there are a couple of extra copies.

Q. The table which you produce shows an excess of sales attributed to the months of June and July over the gas actually made and received for those months of 141,000,000 feet in one case and 80,000,000 feet in another. That in relation to the total gas made is a small percentage, is it not?

A. Quite small.

Mr. MATHEWSON: I offer that table in evidence.

Table received in evidence and marked Complainant's Exhibit 367.

Q. Now, as to the make in any one month and the gas received under the agency agreements, that is an absolute and known quantity, is it not?

A. The make is an absolutely known quantity; the quantity received is a calculated quantity based upon the sales of the other companies and their make for the calendar month.

Q. But that is definitely figured out?

A. That is definitely figured out, yes, sir.

Q. How is it to the sales which are attributed for June and July, are they the actual sales, are those two calendar months
6339 figured on the exact days of those months?

A. They are not. In both cases the sales cover a nominal month and are not necessarily comparable to the calendar month. The June sales for example would run probably from the middle of May to the middle of June, and accordingly as the temperature, weather conditions and other conditions might vary in the calendar month as compared with the nominal month, it would be reflected in the ratio of sales to the quantity of gas to be accounted for.

Q. In other words, the sales attributed to the month of June are not actually the sales in the month of June?

A. They are not, no, sir.

Q. It is an average covering a part of another month, is it not?

A. Exactly.

Q. Taking the month of July, for instance, that includes so far as gas made is concerned the period of the year when a great many people are out-of-town, does it not, say from the first of July, the vacation period?

A. Yes, sir.

Q. It includes in gas sales, however, about half the month of June, does it not?

A. It does.

Q. When the exodus has not begun or extended to the same point?

A. Exactly.

Q. So far as your experience goes, does any company undertake to reconcile its sales attributable to any particular month with the actual gas made in that month?

A. It is impossible and no one undertakes to do it.

Q. If you were to do so would it not be necessary to read every meter on the same day and such meters to be read on the 30th of June and the 31st of July, for example, to cover the month of July?

A. That would be the case, yes, sir, and it would only be sales covering that calendar period which would be comparable to the calendar month's make.

6340 Q. Is that practically possible?

A. It is practically impossible.

Q. And for the five months you have said, instead of having an excess of sales over make of 421,000,000 feet there is actually an excess of make over sales even on this theory of 86,000,000 feet and more?

A. Yes, sir.

Q. What have you to say as to the accuracy of Mr. Hall's statement on page 4477, that the company had 109,983,736 cubic feet of gas on hand, November 1st?

A. The gas company actually had on hand at that date 27,854,000 cubic feet.

Q. Did that also appear from the books of the company?

A. It also appeared from the books of the company.

Q. Now, the testimony in this case shows that the total of holder capacity of the Consolidated Gas Company was in the neighborhood of 50,000,000 cubic feet, so that Mr. Hall's statement of gas on hand would be something more than double at that period the entire holder capacity of the company, would it not?

A. Yes, sir, in that period, and on December 1st when it is made to appear that there are 196,000,000 cubic feet on hand, it is nearly four times the entire holder capacity of the company.

Q. Now Mr. Hall in his testimony refers I think to one item of the company's expenses as being excessive, that is to say meter repairs or expenditures at the repair shop. What is the fact as to that?

A. In making such comparison, Messrs. Marwick & Mitchell in-

clude as a part of the cost of repairing meters the item of meter shop expense, and they get a total which divided by the average number of meters in use during the year 1905 gives 58.56 cents as the cost per meter in use, for repairs. That they compare with
6341 the alleged cost shown in the Massachusetts Report of 49 cents and invite attention to the higher figure in the Consolidated Company. As a matter of fact, the meter shop expense has nothing whatever to do with the cost of repairing meters. The expense of the meter shop, fitting shop, deals with the care of customer's complaints and the locking and unlocking of meters, the clearing services and attending to work of that nature, and work of a jobbing character, and has nothing to do with the repairs to meters. The item in Exhibit 94, repairs to meters, costing $172,925.52 and figuring out 45.25 per average number of meters in use during the year 1905, is the actual cost of repairs to meters and is lower than the figure which they quote as appearing in the report of the Massachusetts Gas and Electric Commission.

Q. In other words, comparing it with the same item which is referred to in the Massachusetts Commissioners' report, is the Consolidated cost higher or lower than in Massachusetts?

A. It is lower. I might add in that connection that the Consolidated Company repairs its own meters as a measure of economy, and that during the year 1905 saved by this scheme $52,717.57 as compared with what the company would have had to pay to outside companies to make similar repairs at the scheduled rates which they charge.

Q. Now, in the summary of accounts excluded by Marwick, Mitchell & Co., at page 1432 of the exhibits there appears an item, "Legislative and franchise litigation," stated to be .61 cents, and on page 1462 is a table showing the advertising and legal expenses in one column, and amounts rejected in another, and the amounts approved in a third. In the column headed "amounts rejected" ap-
6342 pears a total of $63,401.65. Do you discover any error in computing this .61 cents?

A. I do, yes, sir. On this page 1462 and the succeeding page the amounts which Marwick, Mitchell & Company reject are given in some detail. Five items aggregating $63,401.65, one of which is called actual payments excluded, amounting to $15,528.57. Dividing the amount $63,401.65 by their sales factor of 13,012,384,000 cubic feet, gives a rate per thousand of .49 of a cent. Adding for a second time the item of rejection of actual payments, $15,528.57, gives a total of $78,930.22, which being divided by the factor of sales gives a rate of .61 cents.

Q. Which is the cost per thousand which they state?

A. Which is the cost per thousand which they state, and it is obvious that the item of $15,528.57 was included twice in their statement of the amounts excluded.

Q. And if it had not been included twice, the amounts that they excluded for this particular item would be correspondingly reduced?

A. It would, yes, sir.

Q. Now, respecting this factor of sales by which they divide, what did it appear to be?

A. It is the balance of sales left after deducting from the sales reported in Exhibit 94, 13,283,163,000 cubic feet less the lamp sales reported to have been as estimated on the basis of 3 cubic feet per lamp per annum, 270,779,000 cubic feet, the balance, 13,012,384 cubic feet, they used as a volume of sales in arriving at their cost per thousand.

Q. You have already testified that the lamps burn more than three cubic feet per annum, therefore, the item of 270,779,000 cubic feet for public lamps is too small. But waiving that point, is it possible to reach any intelligent results by dividing the
6343 operating expenses as shown in Exhibit 4 by the amount of gas sold, less the amount sold in the city?

A. There is no theory, as I understand it, upon which the lamp sales could be deducted. The expenses shown in Exhibit 94 include the cost of gas delivered to the city, and the income statement of the city shown in Exhibit 96 includes the revenue from those lamps. Even after deducting the amount of maintenance of those lamps, shown in Exhibit 94, there is still left the revenue the company receives from the city for gas supplied to public lamps. Therefore, both in the expense and revenue there still remains the cost of and the revenue from sales of gas to the public lamps, and therefore, to divide the expenses and divide the revenue by such a factor would give results which would be purely erroneous and misleading.

Q. Is that the course which was pursued in this report?

A. That was the course which was pursued in this report.

Q. Now, Messrs. Marwick, Mitchell & Company report in this exhibit a cost which they say is 52.5 cents per thousand cubic feet after making these various deductions which are questioned. What is that 52.50 per thousand cubic feet, per thousand cubic feet of make, sales, or what is it?

A. The amount of 52.50 per thousand cubic feet which they say is the cost per thousand of $6,922,738.34 on page 1438 of their report, is not an amount that would be obtained by dividing that amount by any factor of sales by them or by the company.

Q. Neither by gas made or sold?

A. Nor anything else.

Q. To get one part of that they divide, do they not, certain expenses of manufacture to the station by what they call the
6344 gas made after deducting some leakage, or how is that obtained?

A. Well, I would be loath to undertake to describe how they got that 52.50 because it would be too complicated for anyone to understand it, and it would not be a factor that any practical gas company would use in their own practice, because it would be utterly misleading, being based upon no factors that the company uses in its sales.

Q. At any rate, it is safe to say that it is not 52.50 cents per thousand of feet sold, even on their own theory?

A. It is not, no, sir.

Q. Now, in reference to the legal expenses which they exclude, as attributable to franchise tax litigation or the expenses connected with the legislative investigation, are such charges as those unusual charges in your experience with gas companies?

A. No, sir, they are not.

Q. Those expenses are said to be in connection with the legislative investigation of 1905. How about the hearing before the Gas Commission of 1905-6. That would appear in the expenses of 1906?

A. Yes, sir.

Q. And the expenses of the present suit would appear perhaps in 1907?

A. Quite likely.

Q. And your franchise litigations have been proceeding since about 1899 or 1900, have they not?

A. Yes, sir, they have.

Q. And if such expenses of litigation as advised by counsel are not borne and charged as part of operating expense, do you know of any account in which they could be charged?

A. No, sir, I do not.

Q. What is your judgment as to the propriety of excluding those charges in operating expense?

A. There is no theory that I know of, Mr. Mathewson, in which they could be excluded or on which any company excludes them.

6345 Q. Do you know of any case in your knowledge where they have been excluded as operating expense?

A. No, sir, I do not.

Q. Or similar charges, I mean?

A. Or similar charges.

Q. Now, another point to which I call your attention, Marwick, Mitchell & Company in this exhibit include in their items rejected the sum of $1,850.31, being, as they state, the cost of certain expenses and increases to services in the year 1905, alleging that they should have been charged to construction account. That amount if I recall is so small that it is said it could not be expressed in cents per thousand and was not expressed by them.

A. It was not expressed by them.

Q. But there is a principle there involved and I would like to have you explain as to that item, and your view as to the propriety of excluding it.

A. The only theory upon which they could be excluded from the operating expenses would be that it was a replacement of an old service with a new one, in which case the value of the old service or the value at which it was carried in our books would have to be charged to depreciation account as an offset to the charge of construction of the new service. As a matter of fact, most of the extensions are made in the course of overhauling in advance of new pavements, and are made from the main to the curb line, a portion of the service only, and we estimate that the expense attending the change in the size of the service would just about offset the amount which we would charge to depreciation if we charged that to con-

struction, therefore we make a short cut and charge it to expenses.

6346 Q. Is there any material difference in the result to be obtained.

A. None whatever.

Q. Now, as a layman, let me see if I understand. These services include the cost of laying them under the old pavement and they stand on your books?

A. That is the case, yes, sir.

Q. And if an entire service is abandoned, it is charged out entire at the cost at which it appears on your books, is it not?

A. That is the case, yes, sir.

Q. But you say that in cases where it is proposed to repave a street and where the city I assume has removed the pavement, you then put in an extra joint, say, from the pipe to the sidewalk, and that is charged to repairs?

A. That is charged to repairs.

Q. And you do not have the expense of putting pavement in in that case and repaving?

A. No, sir.

Q. If it were to be charged in another method, we will assume that the cost of the pipe laid would be $4 and that the cost of the pavement originally $1, that would be $5 and it would appear on your books at that figure. If you were charging it to replacement, how would you charge it? You would charge $5 to depreciation, would you not?

A. Representing the value of the service that was in the ground before.

Q. And you would then charge $4 to replacement?

A. Then charge $4 to construction in that case.

Q. And that would amount to a replacement less $1, and reduce your capital account $1?

A. That would be the case.

Q. Instead of that you simply charged——

A. The $4 to the repair account, instead of $5.

6347 Q. And if your pipe, being a larger pipe as you say it is, in place of the old pipe, cost $5 instead of $4 without any pavement, then if you went through the form of replacement, you would carry $5 to depreciation and $5 to construction, meaning the new and larger pipe without pavement?

A. Exactly.

Q. And it would leave your capital account exactly where you started, would it not?

A. It would exactly.

Q. And when you charge it to repairs you charge the $4 likewise to repairs and have your capital account left intact as it was originally, is that it?

A. Precisely, that is the case exactly.

Q. Is it therefore merely a mat-er of bookkeeping as to which way you treat it in a case of this kind?

A. Purely a matter of bookkeeping.

Q. Have you on your books as a matter of fact just exactly what that particular one joint cost, although you have the cost of the entire service in your books?

A. We have not.

Q. So you could not charge a replacement unless you made a particular estimate for that charge?

A. A particular estimate which would be an arbitrary one.

Q. Now, the amount which Messrs. Marwick, Mitchell & Company have stated is, as you say, negligible as applied to cents per thousand. Would the effect upon capital account in any conceivable circumstances be substantial?

A. No, it would not.

Q. As a matter of fact has not the accountant in this report included operating expense charges of substantially similar import?

A. Exactly the same kind of charges where the company has made a small extension from the service to the house risers to enable them to connect the meter, and supply a customer,

6348 charges of that nature have been accepted by the accountants, and they are included in the cost of jobbing, shown in Exhibit No. 94.

Q. It is in evidence that the assessed value of the land of the company in the Borough of Manhattan is $9,753,000, isn't it?

A. Yes, sir.

Q. And what do Marwick, Mitchell & Company take as the valuation of that real estate in their computations?

A. They find the value as shown by the books of the old company $3,377,971.10, and the additions to December 31, 1905, $740,296.28; a total of $4,118,267.38.

Q. Marwick, Mitchell & Company included in their rejections amounts aggregating $2,222.48, which is equivalent to about .02 of one cent per thousand feet sold by the Consolidated Company, stating that it was, price of repairs to apparatus $2,133.98, and repairs to buildings $88.50. What are the facts regarding those items?

A. Well, I have examined all the vouchers submitted to me by Marwick, Mitchell & Company referring to the first item of $2,133.98, and I find that in every case the vouchers attached—the station vouchers attached to the bills, indicate that the material charged for was intended for use in repairing apparatus, and I have no reason to doubt those statements were correctly made.

Q. So far as your investigation shows there is nothing to indicate that the items represent anything else than the books state?

A. Nothing whatever; no, sir.

Q. Now as to the small repair on buildings, $88.50, while the amount is negligible as a matter of fact, is not that the cost of repairing buildings against which you have a certain receipt for rent?

A. Yes, sir, shown in our statement of miscellaneous income, Exhibit 96 in this case.

6349 Q. And all the witnesses, even for the defendant, take the receipts from building rents and deduct them, do they not, from the operating cost of gas?

A. Yes, sir; they do.

Q. Do you know of any other theory in which in that case you can exclude the repair of buildings from operating expenses?

A. Under no theory that I can think of.

Q. On page 4472 and 4473 Mr. Hall testified over objection of complainant's counsel that he was not an expert, that in his opinion the amount expended for renewals in 1905 was sufficient to keep the plant in thorough state of efficiency and replace all waste which may have taken place during the year, and that the depreciation was provided for in the amount written off during the year 1905?

A. We expended for renewals to plant $3,424 in 1905.

Q. And what in 1904?

A. $259,244.32.

Q. What have you to say as to the opinion or statement of Mr. Hall that this expenditure for renewals of plant was sufficient as an average amount to keep the plant in repair?

A. Absurd on the face of it.

Q. Mr. Hall also commented on a charge of 10% on certain work done for consumers, referring particularly to bills rendered by Schmitt Bros. for conducting Manhattan heaters, stating that that was a profit and should not therefore have been charged into expenses. What is the fact as to that?

A. The fact is that Mr. Hall handled a great many of Schmitt's bills and must have observed that an additional charge of ten per cent. was only made in a few instances, not over half a dozen, and the facts with respect to those additions are that in all those
6350 cases the company was put to some expense in connection with the installation of appliances by Schmitt Bros. The expense the company was being put to was for preliminary survey, planning, drawing plans, supervising the work, and expenses of that character which were not more than covered by the amount added to Schmitt's bills.

Q. Therefore was that ten per cent. profit, or did it represent actual expenses?

A. It represented actual expenses; not a penny of profit in it.

Q. Now in the case where there was no such expense incurred was any addition made to Schmitt's bills?

A. None whatever.

Q. Was that also apparent from an examination of the vouchers which Mr. Hall had before him?

A. It was apparent, yes, sir.

Q. Mr. Hall also excludes interest on consumer's deposits, $51,392.50. What is your view as to the propriety of that exclusion?

A. I do not recall that Mr. Hall assigned any particular reason for excluding it. We are of the opinion that we save a great deal of money by charging consumers deposits and that the item of interest is properly an item of expense as it operates to reduce the loss from bad debts which would be very considerably higher if we were not protected by deposits, as well as reducing in our opinion the cost of collecting to some extent. I have made an estimate based upon our operations during 1905 in connection with the deposits and I calcu-

late that we saved during the year 1905 by charging deposits, something like $191,000 of bad debts.

Q. Is it possible or practicable in the gas business to have a deposit charged against the consumer which shall cover any possible charge from that consumer and still conduct your business in
6351 a proper manner?

A. It is impossible from two standpoints: There are a great many consumers of gas from whom it would be absurd for the company to attempt to get a deposit to secure their account. The company has to exercise a great deal of judgment and a great deal of care in that particular branch of the business, and in using its best judgment there are consumers of supposed perfect responsibility who are allowed to consume gas without a deposit who fail to pay their final bills. In the matter of the amount of the deposit charged we have to be careful in that respect also, and of course in estimating the amount that a consumer will burn there may be an under-estimate, and sometimes is, of his consumption, and he is able to perhaps get ahead of the company to the extent of a month's bill.

Q. What is the character of the population of New York with which you deal which makes this situation difficult, as to transients?

A. I don't suppose there is another city in the country that compares with New York in respect to the number of transient residents, made up largely of foreigners or people who spend a short time in New York and leave again, or remaining in New York are shifting constantly from one place of residence to another.

Q. From your information and experience what would you say as to the loss from bad debts in percentage for the Consolidated as compared with other enterprises?

A. I think it is remarkably small.

Q. Even so, isn't it a fact that bills were introduced in the Legislature to compel us to return our deposits?

A. There have been such bills introduced and I noticed in the New York *Times* of January 21, 1907, there is reported a bill
6352 introduced by Assemblyman Eagleton reducing the amount of deposits a company can charge to the amount of one month.

Mr. BURR: This is entirely improper. I think it has no bearing on the present situation.

Mr. MATHEWSON: It simply shows you have to conduct the gas business, as every other business, with some reason, some intelligence and with some regard for your consumers, and you cannot run it on theoretical lines.

Mr. BURR: That is exactly what we have been insisting upon throughout this whole case.

Mr. MATHEWSON: Then we are entirely in accord.

The MASTER: Proceed, gentlemen.

Q. Messrs. Marwick, Mitchell & Company in computing the cost of the gas sold by the Consolidated Gas Company deduct from the charges made by the companies operating under agency agreements the 10 per cent. above cost of labor and material, and also certain interest paid to the New Amsterdam Company on the new construction

at Ravenswood. As a matter of fact was not that Ravenswood construction made for the express purpose of helping the Consolidated out in its requirements?

A. Yes, sir, it was.

Q. Now, the Consolidated Company within the last few years has suffered curtailment of its productive capacity, hasn't it, through action of the city?

A. It has, conspicuously at 18th Street.

Q. Wasn't part of the 111th Street plant taken?

A. It was; taken by the city some years ago.

6353 Mr. BURR: That has all been gone over in the former examination of witnesses for the complainant.

Q. Assuming that this 10 per cent. over cost of material and labor paid to the other companies under the agency agreements, and said interest to the New Amsterdam Company, were deducted, would there not be certain distributing expenses which the Consolidated Company would have to meet before the gas goes into their mains?

A. There would be, as shown by Exhibit 94.

Q. Amounting to how much per thousand feet?

A. I should have to consult that exhibit. I have made a calculation showing that if from the 10 per cent. over cost of material and labor paid the other companies and the interest paid to the New Amsterdam Company, if from that sum there be deducted the station and distributing expenses at the rate per thousand shown in Exhibit 94 for these items for the Consolidated Company, calculated on the amount of gas manufactured under the agency agreements, the balance if it were assumed that it all represented earnings on capital were to be excluded from the cost of the gas made for the Consolidated Company, it would amount to .78 of one cent per thousand cubic feet of gas sold by the Consolidated during the year 1905.

Q. It is also suggested in Marwick, Mitchell & Company's report and in Mr. Hall's testimony and Mr. Mark's testimony that the charge for depreciation or renewals, whatever you please to call it, as shown on the company's books for 1905, amounting to $282,000 was 2.12 cents per thousand feet, or was an amount arbitrarily fixed by the Board of Trustees. Is that the fact?

A. It is not the fact. The authorization did not operate
6354 to create any charge to the depreciation account at all. It simply authorized the transfer of the balance in the depreciation account as of December 31, 1905, to the renewal and contingency account.

Q. Was not the entire $282,000 already charged in the company's books before the Board of Trustees took any action at all on the subject?

A. It was all charged during every month of the year 1905 and the detail of the charges are shown in Schedule 1, Exhibit C, of Marwick, Mitchell & Company's report, covering six type written pages, giving in detail the entries made in the depreciation account, aggregating for the year the amount referred to, $282,000.

Q. Did the resolution of the Board operate to any greater extent than merely to have that $280,000 already on the books charged into a particular account.

A. It had no other effect whatever, nor was it designed to have.

Q. Has the Board of Trustees of the Consolidated Gas Company at any time fixed any arbitrary amount or any cents per thousand which should be charged for renewals and contingent except the ten cents per thousand to which reference has heretofore been made?

A. They have never made any other provision than that.

Q. And have they ever taken any action or has the Executive Committee taken any action establishing 2.12 as the proper amount to be expended for renewals or charged to depreciation in any year?

A. No such action has ever been taken.

Q. Marwick, Mitchell & Company, in this report reject for the year 1905 the sum of $59,836.85 out of the total of $282,000 leaving a remainder of about $222,000 or 1.71 cents, which they allow for depreciation in that year. What does this $59,836.85
6355 represent?

A. It represents the value of certain mains which were abandoned in December, 1905, but which as they were disused in 1903 and 1904, Messrs Marwick, Mitchell & Company excluded from the total depreciation for the year 1905.

Q. Now, as a matter of fact when a main is abandoned and when the company gives up its use, it is marked off the books, isn't it?

A. That is the case, yes, sir.

Q. Were these mains so abandoned until 1905?

A. They were not.

Q. If you cut a main out temporarily on account of the building of salt water mains or for some other purpose it is merely marked "disused" isn't it?

A. That is the case.

Q. And is it still a part of the assets of the company, ready to be used at any time?

A. It is, yes, sir.

Q. Were these mains in that condition in 1903 and 1904?

A. And up to December, 1905, yes, sir.

Q. If, however, they were to be charged back into 1903 or 1904 that would not affect, would it, the average expenditures for renewals and repairs for the twenty years?

A. No, sir, it would not.

Q. It would merely mean that the difference in 1905 between the reduced amount and 10.89 which was the average for twenty years would still be added——

A. It would; the difference would be so much greater than if they left it in.

Q. It would not affect the computation in the slightest, would it?

A. Not in the slightest, no, sir.

Q. Mr. Hall has also commented and possibly one of these other witnesses in reference to the handling of new materials and supplies account and suggested that you might be more certain of
6356 their use if they were treated in some other way in the accounts. What have you to say to that suggestion?

A. There seems to have been a misunderstanding on Mr. Hall's part as to the company's method of dealing with material and supplies. My statement to Mr. Hall was that when materials were purchased for a specific purpose they were so charged on the books of the company instead of being charged first into a stock account and then charged out again as they were used. I also stated to Mr. Hall that if material purchased for a specific purpose were used for any other purpose than that for which it was purchased a report was made to the general office and proper entries made in the books to have the materials finally charged to the account where it was finally employed.

Q. Does that operate to make your accounts any less certain, or your information any less exact as to the using of the material?

A. Not at all, because no additional protection would be afforded by dealing with the material in any other way. Entries on the general books are no protection against misappropriation of property. If the superintendent should mislead us to the extent of sending in a requisition for material that he did not require he would be quite capable of following that up with the report that the material had been employed, so that as far as the books were concerned they would record everything very properly from the accounting standpoint, though the material may never have been used for the purpose for which it was supposed to have been used.

Q. Do your reports show what material is used for repairs and what for construction?

A. The requisitions and the report of the receipt of the
6357 material indicate that the material is to be used either for construction or repairs and in every case states specifically what employment is to be made of it.

Q. Is the method you employ peculiar to the Consolidated Gas Company or is it employed by other corporations of standing?

A. It is very generally employed. As a matter of fact we take perhaps more care of some materials than is general in very large concerns handling a great deal of material for manufacturing purposes.

Q. Do you happen to know whether such a company as the General Electric Company abandoned recently this theory which is advocated by Mr. Hall?

A. I had occasion to visit——

Mr. BURR: I object to that.

The MASTER: That is objectionable, Mr. Mathewson.

Mr. MATHEWSON: Very good.

Mr. BURR: I have not objected to all the leading questions that have been asked because I thought it would consume too much time, but all this line of examination is leading.

The WITNESS: I might say in that connection that Mr. Lacombe and Mr. Hall visited the shops and departments and reported that they found that the records of the use of material were very carefully and correctly kept.

Q. Mr. Hall states at page 4418, regarding the cost sheets of other companies that furnish gas to you under the agency agreements

that you simply held it up before him and would not let him take a copy. Is Mr. Hall accurate in that statement?

A. Quite inaccurate.

6358 Q. Did he ever ask you for a copy?

A. Personally, never, except by mail. He wrote me a letter asking to be shown those reports.

Q. Did a representative of his appear and ask you for them and did you show them to him?

A. Mr. McMurtry, representing Mr. Hall, called and asked to be shown them and they were shown to him and he had them in his hands in my office for something like twenty minutes.

Q. Did he make any demand on you, or request, for copies or for the privilege of copying?

A. No demand or request for copies or for the privilege of copying was made.

Q. Now in regard to the keeping of your accounts as to renewals and replacements and depreciation, Mr. Marks has testified that the depreciation, referring particularly to 1905, does not represent actual expenditure. As a matter of fact does the depreciation account ever represent an actual expenditure in itself?

A. A depreciation account never does record actual expenditure; it represents the writing down of depreciated property.

Q. Which is abandoned or lost or something else?

A. Yes, or superseded or obsolescent or antiquated or many other things.

Q. As a matter of fact where do the expenditures appear which offset that depreciation?

A. The expenditures which offset the depreciation appear in the construction account.

Q. Now I showed you Complainant's Exhibit 79 in this connection. Taking the item of plant, I find the third column "depreciation (renewals) since consolidation $1,227,683.10," does that represent the charge for depreciation on account of abandonment, of loss of property of one kind or another, under heading of plant.

A. Yes, sir, it does.

6359 Q. On the other hand how much was expended to replace in that property account that amount of plant?

A. $1,227,683.10.

Q. Precisely the same figure?

A. Precisely the same figure.

Q. And therefore you have put "renewals" in parentheses as the heading?

A. Yes, sir.

Q. And the balance of construction $3,904,937.21 goes to what account?

A. Goes to construction account.

Q. Now if you look down there, is it not a fact that in every instance and as to every class of property, depreciation has been charged down and expenditure made for an equal amount to renewal in your property account for the amount of property so lost, with a single exception of possibly "furniture and fixtures?"

A. That is the case with every item appearing in Exhibit 79.

By Mr. BURR:

Q. You do not mean to say you include in every item franchises and rights?

Mr. MATHEWSON: That is down at the bottom here. There are no columns of the character to which I have been referring relating to the franchises and rights.

The WITNESS: No depreciation shown for that item.

Mr. MATHEWSON: The State Board of Tax Commissioners don't seem to think there has been any.

By Mr. MATHEWSON:

Q. So taking each one of these items, plants, mains, services, meters, etc., which appear on exhibit 79, is it true that the col-
6360 umn headed "Depreciation (renewals)," does not in that way represent actual expenditures?

A. It represents actual expenditures in every case except the items stated were the expenditures for new property have not equalled the amount by which the property has been depreciated, in the matter of office furniture and fixtures.

Q. If a main is abandoned on one side of Wall Street and a larger main is put down on the other side of Wall Street, is it in your judgment any less a replacement of mains because this is not put in the exact spot?

A. Decidedly not; no, sir.

Q. As a matter of fact may not replacement sometimes precede the abandonment of the main where you lay one large main before you abandon a small main which was formerly used?

A. It may, and not infrequently does.

Q. Does that affect the validity of the bookkeeping or the propriety of it in any way?

A. No, sir, not a particle.

Q. Have you any modifications to make of your previous testimony that these columns of "Depreciation (renewals)," and of "Amount Expended in Repairs," as shown in complainant's exhibit 79 are absolutely accurate and show absolute money spent.

A. I have no modification to make.

Q. I observe that in Marwick, Mitchell's report, gas on hand is dealt with at various times. What is the practice of the company as to keeping exact statements of that character?

A. While we know at seven o'clock every day in the year what quantity of gas there is on hand we do not treat with it in our accounts or in our statistics, and it would only be useful to such a company as you described a little while ago, one that could
6361 index all its meters on the last day of the month and know exactly the sales as compared with the output, would find the record of gas on hand, especially if they had a large holder capacity, of some use to them.

Q. Now as a matter of fact, in the case of the Consolidated Company, can the difference between the quantity on hand at the beginning and at the end of the year be of any substantial importance when taken in connection with the total output?

A. The difference in the year 1905 between the quantity on hand at the beginning and end of the year amounted to about 2/1000 of one per cent.

Mr. Hall in his testimony and also in Marwick, Mitchell's report to which I have referred, figures up certain property amounting to $20,942,000 and also furnishes a statement of certain land which appeared on the books of the constituent company, showing the present value on the books of the company as compared with the value on the books of the six constituent companies. As a matter of fact, does not the land which appears on the books of the company at present include some parcels that have not appeared in Marwick, Mitchell & Company's statement of the land of the six constituent companies?

A. Yes, sir.

Q. Which?

A. The land which belonged to the Knickerbocker Gas Light Company and which was transferred to the Consolidated Company in 1884, as shown by the schedules in Marwick & Mitchell's report, was not included in the accounts of any of the companies which either Yalden in 1884 or Marwick & Mitchell in 1905 had access to. In other words, they were not shown on the books of the Municipal Gas Light Company.

6362 Q. In other words, the real estate, that is the land plus any office buildings on part of the manufacturing or distributing plant of the Knickerbocker did not appear at all, did it, on the Municipal Company's books?

A. Not all, no, sir.

Q. Now Marwick, Mitchell & Company in their report show all the land including that, do they not, as at present valued on the books of the company?

A. Well, I am not aware that anywhere in their report they show the actual value of the company's real estate except as they have copied and embodied in their report the schedules of the real estate which was transferred to the Consolidated in 1884.

Q. But in their computations showing the real estate of the six constituent companies and comparing it with the company's real estate now they do not in the first instance, do they, include this Knickerbocker real estate at all?

A. They do not include the Knickerbocker real estate at all, no, sir.

Q. And that makes any difference between the present values and the values of 1884 inaccurate, doesn't it?

A. The amount at which the real estate of the Knickerbocker Company was appraised in 1884, which was $595,000.

Q. Do the records which they have show that real estate was not included in the records of the books of the five constituent companies that they examined?

A. The records plainly indicated that the real estate of the Knickerbocker Company was not included in the real estate of the Municipal Gas Light Company. In other words, all the real estate they found of record and on the books of the Municipal Gas Light Com-

pany was the real estate described as being located at the North River, between 44th and 46th streets, and the real estate transferred
6363 to the Consolidated Company included real estate of the Knickerbocker Company described as bounded by East 98th and 99th Streets and Second Avenue and the Harlem River and appraised at $595,000. No such property was shown on the books of the Municipal Gas Light Company.

Q. Now, as a matter of fact, the Consolidated Gas Company has not the books of the Knickerbocker Company, have they?

A. No, sir, never had them.

Q. Does it not appear by the Senate Document 47 of 1884 that Mr. Yalden did not have those books?

A. It does so appear.

Q. Did you furnish Mr. Hall all the books that the company actually has or owns or has control of?

A. Yes, sir.

Q. Relating to the six constituent companies?

A. Yes, sir.

Q. Referring to the figures shown in Marwick, Mitchell & Company's report, pages 1503 to 1511 of that report, how do you find the manufacturing averages are made up?

A. They are made up throughout by adding the monthly averages and dividing by twelve instead of using the totals of the two factors that enter into the average in arriving at the average for the year.

Q. Does that represent a true or correct average?

A. No, it does not.

Q. They refer to 14th street labor as 51,765 days. What are the actual number of days?

A. 54,583 days.

Q. That is, the statement is less than the fact by how many?

A. 2,818 days' labor.

Q. Do you find that they have included or omitted the purifier labor there?

A. They have excluded the purfier labor, but have ac-
6364 cepted the gas made per day's labor notwithstanding such exclusion. Of course their figures then would not work out.

Q. It would not give any proper result?

A. No, sir, it would not.

Q. Now as to the 42nd street station theirreport shows 17,508,000 cubic feet of oil gas received from the 14th street station. Does that represent the fact?

A. It is not a fact. No oil gas was delivered there by the 14th street station. They received ordinary gs from the 14th street station.

Q. Oil gas is merely that made at 21st Street and sent down to 14th Street to enrich the coal gas, isn't it?

A. That is the case, yes, sir.

Q. How about 42nd Street labor; do youfind they have included their purification labor in that?

A. In that case also the purification labor seems to have been omitted.

Q. At 21st Street they say 9,570,300 cubic feet under the heading of "candle power." That is, of course, a clerical error, but what should it read?

A. It should read "Croton Water."

Q. Referring to the 21st street station, April, 1905, do you find that they have included all the gas making oil in making up their figures?

A. Their statement of operations at 21st Street excludes 5,587 gallons of naphtha employed in gas making at that station in April, 1905.

Q. They show the oil used per thousand feet in two columns. What errors do you discover there as between April and September?

A. In April there is an error in the gallons of oil used per thousand arising from their omission of the naphtha that was used in that month, already referred to. They get an incorrect average for the year from any standpoint. We were unable to check their figure
4.65 gallons per thousand cubic feet. It don't check in any
6365 way. The next table showing the gallons per thousand, showing the total of 4.61, is correct, except of course as to April again they make a mistake by excluding the naphtha as already referred to.

Q. Now, at the 21st Street station, in delivering your production, do you find that they include in their computations the tar burned under the boilers during January, 1905?

A. No. Their report shows no weight of tar in January, 1905, although directly under the column where it should appear there is a quantity expressed in gallons of 320,020 gallons of oil used during that month, therefore that January omission is incorrect and that total for the year is incorrect.

Q. Now, at 44th Street is there any omission in their report of oil tar used during February?

A. An omission of 8,608 gallons of oil tar used during February, 1905. The figure shows 198,018 as being correct. The correct quantity is 206,626 gallons.

Q. How about the 44th Street plant, in their report do they show the entire labor there employed.

A. Their statement of labor is incorrect. The number of days would be 12,555, instead of 7,713. As they are shown in their statement the cost of a per day's labor while correct in other respects is incorrectly averaged.

Q. Now, before leaving a review of Mr. Hall's testimony in this report, I call your attention to the testimony of the witnesses for the defendant that it was a proper method of bookkeeping, to charge off to depreciation any property lost, abandoned, or taken out of the property accounts of the company; is that the method used by the Consolidated Company?

A. Yes, sir.

6366 Q. And they also agreed that it was proper to charge into property account any expenditures for construction; is that the course which the Consolidated pursues?

A. Precisely.

Q. And so far as those expenditures offset or equal the amount of property charged off to depreciation they appear in effect in your accounts and in fact as renewals of property lost, do they not, or replacements of property lost?

A. That is the case, yes, sir.

Q. Has there been in fact, as suggested might have been the case by one or two of the witnesses for the defendant, any increase or augmentation of the property or capital account of the company except as it may result from the method of bookkeeping which I have just called your attention to; that is, construction more than offsets the depreciation already charged off?

A. Nothing of that kind.

Q. In other words, has there been any increase out of earnings?

A. None whatever.

Q. Mr. Hall refers to certain adjustments (p. 1432) .16 of a cent, and he introduces that as a factor in the cost of gas. Are you able to ascertain just what that represents?

A. It was impossible to do so, but I presume it is intended to cover the omission of several items which appear in the statement, page 1437 of exhibits aggregating .31 of a cent, which are not included in the statement on page 1432 although as items rejected are obviously intended to be excluded in that statement, it is not an amount which is divisible into any component part nor the cost per thousand on any volume of sales used by Marwick, Mitchell, or the Consolidated Gas Company in any of its computations.

Q. Referring now to Mr. Edgerton's testimony, he makes a comparison of the oil tar used by the New Amsterdam Company
6367 and the oil tar produced by the Consolidated Company, apparently showing the amount produced by the New Amsterdam is about one-half as much as that produced by the water gas plants of the Consolidated; is that right?

A. That is the case, and it occurs on page 4874 of the printed testimony.

Q. Is that correct?

A. It is not correct. The quantity of oil tar shown in State's Exhibit III, is the amount of oil tar sold by the New Amsterdam Company during the nominal year ending October 31, and is not the quantity produced during that period, and one-half of the tar produced by the New Amsterdam Company was used as fuel.

Q. Comparing the total amount produced by the New Amsterdam Company to the total amount produced by the Consolidated Company there is not any substantial difference, is there?

A. No substantial difference whatever between the two.

Q. Mr. Edgerton is made in the testimony to refer to the 42d Street oil tar, that it is representing 33 per cent. of the oil used?

A. He stated that the oil tar used by the Consolidated Gas Company by the bench process was 33 per cent. of the gas used. As a matter of fact, there is no oil tar produced by the bench process. There is a drip oil produced used for fuel under the retorts of which no record is made and none kept, and therefore, no figures avail-

able to which Mr. Edgerton could have access, and from which he could not have drawn any such conclusion.

Q. Are you able to point out to him where he did draw such conclusions from?

A. Yes, sir, at 42d Street there was recorded in the manufacturing records to which Mr. Edgerton had access, during the last six months of 1905 the coal tar that was produced at that station, and the
6368 coal tar produced during that period amounted to 652,171 gallons, representing 33 per cent. of the gas oil that was used at that station in enriching the coal gas made there. The two, however, had no relation whatever to each other. The coal tar produced has nothing to do with the gas oil used for enriching coal gas, but we are of the opinion, however, that these figures must have been used by Mr. Edgerton as there were no other figures in any of our records that would show any such 33 per cent. from any computation whatever.

Q. Well, that 33 per cent. would not mean anything, would it?

A. It would not mean anything, no, sir.

Q. Mr. Edgerton stated that so far as he knew there had been no particular change in the cost of materials for seven years. Do you know whether there has been or not?

Mr. KIRBY: What reference was that?

Mr. MATHEWSON: I haven't the page.

A. He did make that statement and I took the trouble to look up the prices at that page for anthracite and bituminous coal in 1899, and found that it was for anthracite coal, $3.35 a ton against $4.36 a ton, paid in 1905, an increase of $1.01 per ton, or about 33¼ per cent. In the case of bituminous coal in 1899 the price was $2.38 against $3.18 in 1905, an increase of 80 cents per ton, or about 33 per cent.

Q. Mr. Edgerton also made at page 4873 some comparison between the cost of manufacture at the Consolidated water gas plant and the cost of manufacture at the New Amsterdam plant, stating the Consolidated to be 31.05 and the New Amsterdam 29.01
6369 cents per M. of make. Did he compare the same periods in those cases?

A. I am not able to establish the fact that he did. The average cost which he states for the Consolidated water gas stations, 31.05 per M., is incorrect. The cost for the nominal year ending October 31, 1905, which is the same period as covered by the New Amsterdam statement, is as follows:

	Gas Made.—cu. ft.	Cost.
21st Street Station	4,185,341,000	$1,341,188.50
44th Street Station	2,263,444,000	695,539.20
99th Street Station	1,401,538,000	420,938.42
	7,850,323,000	$2,457,666.12

Equal to 31.30 cents per thousand cubic feet made. To make a comparison with the New Amsterdam Company it would be neces-

sary to deduct from this total the items of experiments and depreciation, there being no corresponding items of expense in the New Amsterdam; they amount to $53,599.03, equal to 68 cents per thousand cubic feet made, leaving a balance of $2,404,666.19 or 30.62.

Q. To compare with the New Amsterdam cost of 29.01?

A. A difference of 1.61 cents.

Q. As to this item of depreciation you heard or read the testimony of Mr. Doane of the New Amsterdam Company in reference to their practice when property was lost, did you not?

A. Yes, sir. I know that Mr. Doane testified it was the practice of the New Amsterdam Company to charge all the renewals and replacements to construction account and not to charge anything off for depreciation. It is generally understood that the line between repairs and renewals may be drawn very fine, so it is even possible that repairs may get into construction account.

6370 Mr. MATHEWSON: I am referring to his testimony in the New Amsterdam case where he said they charge everything to construction and did not charge anything to renewals, for he said they could not afford it and within two or three years they were losing money and not paying their operating expenses.

Mr. BURR: Mr. Doane was here. You did not examine him with regard to that. You are reciting now the substance of what you claim was his testimony. You should produce the testimony here and call Mr. Carter's attention to it. I do not know what testimony you refer to. I was not a party to that case. I object to it further as not being proper rebuttal.

Mr. MATHEWSON: It is page 370 and following of the printed New Amsterdam case.

Q. Now, considering this difference of 1.61 between the New Amsterdam cost and the Consolidated cost, would that be a difference which in your judgment might not occur in the operation of the plants in the same town if there was nothing special to explain the difference?

A. Why, yes, sir, I think it would be difficult for two plants working entirely independently to get much closer together than that.

Q. As a matter of fact, however, did the New Amsterdam Company have the same candle power at its station that the Consolidated did during this period?

A. No, sir, there was a difference between the candle power of the two stations .41 of a candle which I estimate to amount to about .57 of a cent included in that difference of 1.61 cents.

Q. What is the condition of the two companies as to the element of cartage at their manufacturing stations?

6371 A. The New Amsterdam Company are very fortunately situated in that respect. We have to cart refuse away at some expense. People who are filling in land in the vicinity of the New Amsterdam plant are very glad to come and cart theirs away and at the present time they not only have the carting done but receive something for the ashes.

Q. A great deal of filling in in that section is going on, isn't there?

A. Yes, sir.

Q. Now, as a matter of fact the difference in the cartage items of the two companies which would be thus explained is how much?

A. .20 of a cent.

Q. Now, about the item of distribution which goes into the gas at the holder——

A. The very large territory which the Consolidated Company supplies necessitates the employment of distributing stations, the cost of which is *pro rated* between the manufacturing stations.

Q. While the New Amsterdam have but a single manufacturing station?

A. The New Amsterdam have only a single manufacturing station.

Q. What do you find to be the difference in the item of distribution as between the two companies?

A. .26 of one cent.

Q. What about the item of station expense as between the two companies?

A. Well, I am of the opinion that the fact that the station expense at Ravenswood is shared by the distributing department; the distributing department being located at the station results in a division of expense there which would be rather favorable to the cost of that item to the New Amsterdam Company.

Q. It appears that the Consolidated "Station Expense" involved in this amounts to how much more than the New Amsterdam?

A. .32 of one cent per thousand cubic feet made.

6372 Q. Now, if we take into account this difference in candle power which the Consolidated maintains above the New Amsterdam, and the difference in the cartage due to the New Amsterdam station, and the difference in the item of distribution due to the fact that the Consolidated has many stations and the New Amsterdam but one, and this difference in station expense, and aggregate them, they amount to 1.35 cents, do they not?

A. They do.

Q. And if deducted from the previous difference between Consolidated water gas stations and the New Amsterdam station, to wit, 1.61 cents, what would the balance unaccounted for be?

A. .26 of a cent.

Q. Do these figures in your judgment show any want of efficiency in Consolidated water gas management or apparatus as compared with the New Amsterdam?

A. None whatever.

Q. And how about the station cost of the Mutual and Standard which operate in New York City and have their plants here as compared with the station cost to the Consolidated at its water gas stations?

A. The Mutual is higher.

Mr. KIRBY: Does the Master consider all this testimony proper rebuttal? It seems to me we are going to length here without limit, taking up all these matters that Mr. Carter has no knowledge of whatever, acting upon sources which are not in evidence.

Mr. MATHEWSON: You put in evidence the cost between the Con-

solidated and New Amsterdam and drew the inference that the Consolidated ought to do better. We now put in from exactly reliable sources—you went to the report—we have them—showing the
6373 cost to the Standard and the Mutual operating on Manhattan Island to be the same practically or greater at the holder than the Consolidated. Isn't that proper to meet your bringing in the New Amsterdam?

Mr. KIRBY: In the first place I cannot say it is. In the next place that which we spoke of, we put in evidence, the table is in evidence.

Mr. MATHEWSON: I can have it written out as a table if it makes it better evidence.

Mr. KIRBY: Mr. Carter says he got some information and he draws a deduction from it. Now he is going to the Mutual and now to some other company.

Mr. MATHEWSON: Your Mr. Bemis and Mr. Edgerton and Mr. Marks read reams of deductions from these figures before the Gas Commission in the case of other companies.

Mr. KIRBY: Mr. Edgerton's reams I think consist of one page.

Mr. MATHEWSON: Well, that is a good precedent. I cannot be excluded from the same sources. I am merely asking——

The MASTER: I think if you opened the door for that kind of testimony there seems to be some force in Mr. Mathewson's suggestion. We have all been relying on here, and using, a great deal, these records of other investigations.

Mr. BURR: I concede that we had a great deal of comparative data, but where that data has been extracted from the history of any one company, the circumstances attending anything were fully brought out either on direct examination or cross examination. Now if we have to go into the situation that these two companies were
6374 placed in which would justify the figures that Mr. Mathewson quotes regarding these matters, that is another matter that opens the door to a further examination of these companies.

The MASTER: I am not disposed to exclude it unless carried to what seems to be an unreasonable length.

Mr. MATHEWSON: It is brief. I merely asked what the station cost was of those two companies, the Standard and Mutual, according to the records which he has.

A. The station cost of the Standard for the nominal year ending October 31st, 1905, was 30 cents or .62 of a cent lower than the Consolidated cost.

Q. And it had a single station as against many for the Consolidated?

A. Yes, sir. The Mutual cost was 34.34 of a cent for the same period.

Q. Mr. Edgerton refers to certain foundations at 21st street which he said were not in use and that he did not value, were there any such foundations?

Mr. KIRBY: That they were not there.

A. There are no foundations at 21st street that the company has any knowledge of that are not in use, occupied by apparatus.

Q. And he also took occasion to suggest that he doubted whether the foundations of the apparatus when the new Lowe apparatus was put in were charged off, and that quite likely they still appeared as part of the capital and property account. What is the fact as to that?

A. The fact is that any apparatus that has ever been dismantled in the history of the company to make room for new appa-
6375 ratus has been charged to depreciation account and been taken out of the property account.

Q. And was that true as to anything that was abandoned at 21st street at the time to which Mr. Edgerton had reference?

A. It was absolutely true at that time, as I have established by looking up the entries in the books which were made at that time, and I find that the apparatus that was replaced or superseded at that time was taken out of the plant and property account and charged to depreciation account.

Q. Now, Mr. Edgerton also in explaining why he allowed three per cent. for engineering and general expenses in addition to the amount paid contractors in his estimate of cost of plant stated or explained that he found three per cent. the amount charged for the Astoria plant construction, similar items. Did he not?

Mr. KIRBY: No such thing.

A. He so stated specifically in his testimony on page 5387.

Q. Yes, and he said he was surprised to find it so small, I think.

A. Yes, sir.

Q. As a matter of fact, does three per cent. represent the engineering expense at the Astoria plant?

A. It does not. And furthermore, Mr. Edgerton did not have access to any books of account that would have shown to him what the cost of engineering expenses incidental to the construction of the Astoria plant happened to be.

Q. Now, as a matter of fact engineering expenses of that kind are made or passed through the books of the Consolidated?

A. They do, and Mr. Edgerton may have observed some
6376 entries in the Consolidated Company's books representing expenditures possibly for salaries or wages which were charged to the Astoria Company, and of course any such item would form but a small part of the expense of that kind of the Astoria Company.

Q. The bulk of such expense would appear in the Astoria books, would it not?

A. Yes, sir, it would.

Q. Let me ask you whether when an expense is made of that character and passes through the Consolidated books that appears as part of the operating cost of the Consolidated Company, or whether it is excluded in your computation?

A. It is excluded, of course.

Q. It does not enter into the cost of Consolidated expenses or property, or account.

—. —.

Q. As a matter of fact at Astoria has the ten per cent. estimate proven to be not excessive, so far as experience goes?

A. So far as experience goes, the expenditures of that nature at Astoria in connection with the construction of the plant at the present time amount to 11.62 per cent. of the amount expended.

Q. Mr. Edgerton also referred to the natural gas in Chicago, and said that about 168,000,000 feet of natural gas was pumped in daily.

A. 168,000,000 repeated twice on page 4845 of Mr. Edgerton's testimony. The fact is that according to Mr. Bemis' testimony the output in Chicago is about 11,000,000,000 cubic feet per annum, which would, reduced to a maximum day's output, amount to about 55,000,000 feet for a maximum day against the 168,000,000 of natural gas which Mr. Edgerton testified was pumped into Chicago at high pressure.

6377 Q. Did it not appear from Mr. Bemis' testimony that a greater part of that was manufactured in Chicago?

A. Of the 11,000,000,000 feet the greater part of it was manufactured gas.

Q. But if you assumed a maximum day's output and assumed that it was all natural gas, it would not equal the amount which Mr. Edgerton assumed was pumped in daily in the shape of natural gas?

A. It would not amount to one-third of it.

Q. Mr. Edgerton also referred to the correction for temperature, which testimony is on page 4851.

A. He testified that he thought prior to July 1st, 1905, the city inspector corrected for temperature. As a matter of fact, we know that the city inspector did not correct for either temperature or pressure prior to July 1st, 1905.

Q. What have you to say to Mr. Edgerton's statement that the 14th street plant is a dilapidated old plant?

The MASTER: Did you not cover that this morning?

Mr. MATHEWSON: I don't think I did fully.

A. Well, there has been nearly a million dollars expended on keeping that plant in repair since 1884, and as I testified this morning, the plant has been greatly increased and the cost of manufacturing gas there has been greatly reduced, so in every respect the standard of efficiency has been maintained at the plant and the capacity considerably augmented.

Q. Would you agree therefore, with Mr. Marks' statement on page
4587 that the works themselves appear to have been amply repaired and the operating portion used for the manufacture and
6378 generating of gas rather than with Mr. Edgerton's statement that is was dilapidated?

A. Yes, sir, I should have to agree with Mr. Marks' testimony with respect to that.

Q. Did you read Mr. Edgerton's hypothetical cost of mixed coal and oil gas, in the City of New York?

A. Yes.

Q. And have you prepared a table reviewing that?

A. I have prepared a table wherein I substitute for his figures the actual results obtained in New York City.

Q. What of his figures or methods do you employ in making up the table to which you refer?

A. I have accepted his coal figures as to the production of gas per ton of coal and the cost per ton, and one or two other items. I have also accepted his cost of purifying gas, because he alleges with respect to that item that he gets better results, two candles better.

Q. And so far as the other items are concerned, you have inserted in this table actual facts instead of Mr. Edgerton's fancy?

A. Yes, instead of Mr. Edgerton's hypothetical conditions, yes, sir. That is the table (handing paper).

Q. And this table shows that employing such actual facts in the cases where you have stated, you have done so, the cost per thousand feet of his mixed coal and oil gas in New York City to be how much?

A. 36.22 per thousand feet of mixed oil and coal gas. The table is as follows:

6379 MIXED COAL AND OIL GAS.

MR. EDGERTON'S HYPOTHETICAL COST ADAPTED TO NEW YORK CONDITIONS—ASSUMING COST OF OIL GAS TO BE AS COMPUTED BY MR. EDGERTON.

Cost of coal—10,640 c. f. @ $3.20			30.08	30.08
Cost of discharging—labor and cartage 25.66c. per ton			2.41	1.053
Labor—gas making and purifying 78.95c. per ton			7.42	4.91
Supervision			.50	.50
Repairs			4.26	3.50
Purifying material—Lime			.75	.75
Purifying Material—Oxide			.25	.25
Oil waste and sundries			.37	.37
Water			.17	.17
Expense			.77	
Distribution			.88	.50
Distribution station expense			.55	
			48.41	42.083
Less Residuals:				
Coke, 66%	1,478 lbs.	1,478 lbs.		
Less use in retorts, 32%	473 lbs.	295.6		
Coke for sale	1,005 lbs.	1,182.4		
Value at 2.75 pr. short ton	$1.38	1875—12.98	22.22	
Tar 13 gals. per ton @ 2.24c		29.12c.— 2.73	7.049	
Am. 21.22 lbs. sulphate per ton @ 1.36c		28.85c.— 2.71	5.263	34.532
		18.42		

Less cartage and labor handling coke at 53.69c. per ton coke.....	2.69	15.73	
		32.68	7.551

775 c. f. @ 32.68—25.32
225 c. f. @ 48.45—10.90

1000 c. f. —36.22 Cost per M. c. f. of Mixed Gas.

NOTE.—Mr. Edgerton's figures underlined.

6380 Q. Now, Mr. Carter, as to the receipts from residuals, Mr. Doane has testified in reference to the sale of coke, and also Mr. Addicks. Have you conferred with Mr. Doane or the other officers in respect to the market for coke from time to time?

A. It is frequently a subject of conversation.

Q. And is that subject of the sale of coke pushed by the Consolidated Gas Company as well as the National Coal & Coke Company?

A. Decide-ly in every way, by advertising and by the exhibiting of signs and announcement to consumers through such facilities as we have, everything that we can do to encourage the use of coke as fuel is done.

Q. Now, in reference to your ammoniacal liquors and your coal tar respecting which you are dealing with the Barrett Manufacturing Company. It has been suggested that the company might itself deal with those products. Has that subject ever received consideration from you or the Consolidated Company?

A. Yes, sir, I have given personally some consideration to the subject of the conversion of coal tar into pitch and dead oil and the marketing of those products, and considering the amount necessary to be invested in a plant for performance of that work, the expense of doing it, the expense of marketing the commodity, the possibility of competition, I have not seen my way clear to recommend that the company take up the handling of that product itself.

Q. Was this investigation and this thought to which you have referred given to the subject in order to determine whether it was possible or prudent for the company to undertake this work and establish a plant for the purpose?

A. It was for that purpose.

Q. Was it during the pendency of this hearing or before it?

A. Oh, before this hearing.

6381 Q. Now, as a matter of fact Field's analysis from which Mr. Kirby quoted at pages 6049 and 6050 of this record, shows, does it not, 1.37 pence equal to about 2.74 cents per gallon for coal tar received by the three London companies?

A. Yes, sir.

Q. Now, this being per Imperial gallon, which is 20 per cent. larger than the American gallon, what price would that mean if reduced to terms of the American gallon?

A. 2.19 cents per American gallon.

Q. And what did the Consolidated Company receive in 1905 for its coal tar?

A. 2.24 cents per gallon.

Q. Now, Mr. Kirby, also at page 6049 of the testimony, referred to a report in Field's Analysis that the three London companies received for their ammoniacal liquor and sulphate of ammonia 48 cents per ton of coal carbonized. Do you understand that this was 48 cents per ton of coal carbonized net to those companies?

A. No, sir, I do not. I understand it was gross, and that there could be no comparison made between those receipts and the receipts of the Consolidated Company for its ammoniacal liquor.

Q. In other words, out of that 48 cents if these companies treat it themselves, would have to be deducted the expense of treating it, and the return on the plant invested in treating it, would it not?

A. The largest company of the three and the one that does a larger business than the other two combined, sold no ammoniacal liquor, but only sulphate of ammonia during the year 1905.

Q. What do you find was given as the market price for sulphate of ammonia?

A. I found in the same London Gas Lighting journal in which I got the report of the Gas Light and Coke Company of
6382 London a statement of the market price per ton of sulphate of ammonia, which reduced down to pounds, figured about 2.73 cents per pound of sulphate. The price which the Consolidated Company received for its ammoniacal liquor is based upon an average market price here of 2.75 cents per pound of sulphate of ammonia.

Q. Slightly more than the London Company?

A. Slightly more than the average price prevailing at that time in London.

Q. Practically the same?

A. Practically the same.

Q. You have read the testimony here on the subject, have you not, of the ammonia and coal tar?

A. Yes, sir.

Q. And with that in view and as the result of your examination, do you think it would be wise or profitable for the Consolidated Gas Company to enter into the treatment of those two products and establish a plant for that purpose?

A. I don't think it would be wise, no, sir.

Q. And in your judgment would the net results be any better to the company than they are getting now, so far as those products are concerned?

A. It is because I think it would be no better that I think it would not be wise, Mr. Mathewson.

Q. Referring to the tabulation of Mr. Edgerton in his hypothetical cost of mixing coal and oil gas in New York City, what do you find as to the value of his residuals in relation to the cost of his coal according to the estimate which he prepared?

A. Well, I find that while it is not apparent on the face of it, the value of his residuals exceeds the cost of his coal.

Q. By how much, do you remember?

A. Well, six or seven cents, I think, as near as I can remem-

6383 Q. And in making up this schedule, you assume for the purposes of this computation, do you not, his coal figures as to the cost of production and the cost of two or three other items including his purification figures?

A. Yes.

Q. On page 5362 Mr. Edgerton states that he saw a lot of foundations at 21st Street station on which there was no apparatus. Are there any such foundations there that you know anything about?

A. There are no such foundations in existence.

Q. Now, Mr. Carter, leaving Mr. Edgerton's testimony and taking up a few other points, have you read the analysis of Marwick, Mitchell & Company relating to the cost of the property of constituent companies as carried on their books prior to consolidation, and the testimony of Professor Bemis and others to the same point, they starting with the statement that the cost to the six constituent companies of the property taken over by the Consolidated Gas Company in 1884, appeared in the books of the six companies at only $20,942,000?

A. Yes, sir, that sum has been referred to repeatedly.

Q. Is it a fact that all the property of the Consolidated Gas Company which it took over, and which was included in the $29,994,000 appraisal of Rowland and so forth in 1884, did appear on the books of the company as only $20,942,000?

A. No, sir, it did not so appear.

Q. Now, as a matter of fact at page 776 of Senate Document 47 of 1886, Mr. Yalden has a column headed "Costs of property," and in the exhibit that has been presented here from Mr. Hall in the Marwick, Mitchell & Company report, he also uses the term "Cost;" is there any such heading in the books of the constituent

6384 companies as cost?

A. None in any of them, no, sir.

Q. Is there any account in the constituent companies that states that figures, $20,942,000 as the cost of the properties?

A. Not a line.

Q. As a matter of fact, those figures $20,942,000 relate to the books of how many of the six companies?

A. They relate to the books of five of the six companies.

Q. And the Knickerbocker books were not before the Committee of 1886, were they?

A. They were not, no, sir.

Q. Does the $20,942,000 represent anything less than the figure at which certain property of the five companies who were present was carried on their books at that time?

A. That is all it represents.

Q. After charging down depreciation and other accounts?

A. After charging down depreciation in very large sums.

Q. I would like to have you say whether you have examined as Professor Bemis said he had examined the report, Senate Document 47 of 1886, and whether you will show from that that the $20,942,-

000 was not the cost of the property which the Consolidated Gas Company took over at $29,994,000 in 1884? In the first place the $20,942,000 did not include any property of the Knickerbocker Company, did it, except $810,000 expended by the Municipal Company on the plant of the Knickerbocker Company after the Municipal Company leased the Knickerbocker Company properties?

A. That is the case.

Q. And does Mr. Yalden so state in his testimony before the Committee of 1886?

A. He plainly states that, repeatedly states it.

Q. Will you make your statements and deductions re-
6385 ferring to such points as you think advisable?

A. The statement is intended to show the amount by which the value of the books of the old companies of the plants transferred to the Consolidated Gas Company exceeded the value at which it was appraised in 1884. In the first place, I would have to establish the value of the plant of the Knickerbocker Gas Light Company. The testimony before the Senate Investigating Committee of 1886 in Senate Document 47 was to the effect that there had been expended on the property of the Union Gas Light Company prior to the time of its going into the hands of a receiver and being acquired by the Knickerbocker Company, $1,200,000. That this company was acquired by the——

Q. That is by the testimony of whom?

A. This appears by the testimony of John Sickles who testified on page 284 of Senate Document 47. The Knickerbocker Gaslight Company invested after acquiring its property some $1,200,000 on it.

By Mr. BURR:

Q. Are you testifying of your own knowledge?

A. I am testifying as to the results of the testimony given before the Senate Committee in 1886.

Q. That is true with regard to all the statements you are making about the company?

A. Yes, sir.

The MASTER: I so understand.

The WITNESS: It was testified that cash was raised, dollar for dollar, for $750,000 of Knickerbocker bonds, and $450,000 of Knickerbocker notes on page 279 of the testimony. And a detail was given there of the expenditure of $1,100,000 out of the $1,-200,000.

6386 By Mr. MATHEWSON:

Q. Represented by those bonds and notes?

A. Yes, sir, or the cash realized from them. This appears on page 283 of Senate Document 47. It appears furthermore that $810,000 was expended by the Municipal Company for the benefit of the Municipal Company, such expenditure being shown on the books of the Knickerbocker Company, and included by Yalden in his total valuation of $20,942,000. The property was appraised in 1884——

Q. Had you not better give the summary?

A. The summary with respect to the Knickerbocker Company in brief is this, that there was invested by the Union Gas Light Company prior to the receivership $1,200,000. There was invested by the Knickerbocker Gas Light Company prior to the acquiring of that company by the Municipal Company $1,200,000, and there was expended by the Municipal Gas Light Company $910,000, a total expenditure of $3,210,000, and this by the way does not include any expenditures of surplus, which the books indicate that the Knickerbocker Gas Light Company had accumulated up to 1884. The statement of Yalden indicates that they had $416,000 of surplus earnings undistributed, and of course the inference is that that was invested in plant and property, but I have only taken into account in this table the expenditures by the Union Gas Light Company by the Knickerbocker Company and the Municipal Company aggregating $3,210,000.

Q. And were all these sworn to by uncontradicted evidence before the Committee of 1886?

A. The testimony of witnesses in that respect was not contradicted in any respect whatever.

6387 By Mr. BURR:

Q. What other witnesses do you refer to beside Sickels?

A. A number of witnesses testified to that effect.

Mr. MATHEWSON: Yalden testified to the $810,000 expended by the Municipal Company.

Mr. BURR: Have you given all the pages where this appears, pages 279, 284 and 283?

Mr. MATHEWSON: And page 278 and 282.

By Mr. MATHEWSON:

Q. This property was appraised at what figure in 1884 at the time the Consolidated took it over?

A. At the time the property was transferred to the Consolidated Company in 1884 it was appraised at $2,472,000. In other words, the undisputed testimony with respect to the cost indicates that the property cost $738,000 more than it was appraised at in 1884.

Q. Now, of this $3,210,000 or the appraised value of $2,472,000, how much appeared in the $20,942,000?

A. Only $810,000, the amount which the Municipal Company had expended on the property.

Q. Have you prepared a table showing——

A. I think I can state what it is. Showing that the appraised value of the plant transferred to the Consolidated Gas Company was $204,134.05 less than the book value.

Q. Do you mean by that the cost of the plant, according to the books?

A. No, the cost of the plant is another proposition entirely. I am showing now the difference between the appraised value and book value of the plant, showing that so far as the plants
6388 were concerned that they were appraised at less than the book value, less than the value at which they were carried on the books of the old companies.

Q. Regardless of the fact that they were carried on the books of the old companies at very much less than their cost?

A. Yes. I have prepared a table showing that, and submit it herewith.

Appraised value of plant and property in 1884, (excluding franchises and rights $7,781,000)..		$29,994,000
Value as shown by books of Constituent Companies—(Yalden's summary p. 1398 Exhibit in this case).....		20,942,632.85
Excess appraised value over book value		$9,051,367.15
The Real Estate of the old companies, including that of the Knickerbocker Co., was taken over by Con. Co. (see Ex. 79: p. 347 A Exhibit) at.....	$10,332,000	
Messrs. Marwick and Mitchell (p. 1562 Exhibit) reported that the real estate was carried on the books of the old companies (excluding Knickerbocker)	3,377,971.10	
Difference (which includes Knickerbocker Real Estate appraised @ $595,000 M. & M. p. 1570 Exhibits)	$6,954,028.90	
On page 875 of Exhibits in present case appears a statement in Comp. Ex. 227 which shows the excess of appraised value of mains, meters and services in 1884 over value shown on books of old companies to have been.....	$1,979,315.00	
The plant and property of the Knickerbocker Company was appraised in 1884 (p. 652, Senate Document 47).	$2,472,000	
Including mains, meters and services $894,000		
Real Estate 595,000	1,489,000	
Balance representing Plant	$983,000	

6389

Investmt. by Mun. Co. in plant for Knickerbocker Co. included in the $20,942,632.85 (S. D. 47, page 948)	$660,842.70	
Bal. being appraised value Knick. plant over amount invested by Munic. Co. for a/c Knickerbocker Company	322,157.30	$9,255,501.20
Difference—being the amount by which the value on the books of the old companies of the plant transferred to Con. Co. exceeded the value at which it was appraised in 1884		$204,134.05

6390 Q. Well, this statement which you have just submitted states in brief that deducting from the appraised property in 1884, $29,994,000 the book value of assets as shown on the books of the five companies outside of the Knickerbocker, $20,942,632.85 you have $9,051,367.15, appraised value over that particular property?

A. Yes, sir.

Q. But the appraised value covers property, does it not, which is not in the $20,942,632.85 at all?

A. That is the case.

Q. What are these items the sum of which you compare with the difference of $9,051,367.15?

A. The first item is the excess of the appraised value of the real estate in 1884 that was transferred to the Consolidated Company over the value at which Messrs. Marwick and Mitchell report that it was carried on the books of the old companies, excluding the books of the Knickerbocker Company. In other words from the appraised value of $10,332,000 I deduct Marwick, Mitchell & Company's value as shown by the books of the old companies of $3,377,971.10 and I get a difference which includes the Knickerbocker real estate appraised at $595,000 of $6,954,028.90. On page 875 of exhibits in the present case appears a statement in Complainant's Exhibit 227 which shows the excess of appraised value of mains, meters and services, in 1884 over value shown on books of old companies to have been $1,979,315. These are two items of appreciation which have nothing to do with the plant, appreciation in real estate and appreciation in mains. There is one other item of $322,157.30 which is the plant of the Knickerbocker Company over and above what was shown on the books of the Municipal Company as having been expended, and which are therefore included in the appreciation shown

6391 by comparing the $29,994,000 and the $20,942,000. These three items being, first, the appreciation in the real estate;

second, the appreciation in the mains, and, third, an item excluded because it was not shown at all upon the books of the old company, that is a certain portion of the plant of the Knickerbocker Company, amounting in the aggregate to $9,255,501.20. Deducting from this the amount ppreviously given, $9,051,657.15, leaves a balance of $264,134.05 which is the amount by which the value of the books of the old companies of the plant transferred to the Consolidated Gas Company exceeded the value at which it was appraised in 1884.

Q. I think I understand you, Mr. Carter, but put from a layman's standpoint it amounts to this, does it not, that deducting the appreciation of real estate, deducting also the amount carried in mains, services, etc., that you have left an amount for value applied which exceeded the appraised value of plant in 1884?

A. That is the case.

Q. So that without regard to the proposition that the plants were not carried at their actual cost on the books of the constituent companies, the figures at which they were carried exceeded the amount of the appraised value?

A. That is the case, yes, sir.

Q. Now you have referred to the fact that the Knickerbocker Company did not appear at all in this $20,942,000, except $810,000 which was spent on the Knickerbocker plant by the Municipal Company, and that, therefore, the difference between the $810,000 and the $3,210,000 that was spent on the Knickerbocker plant or $2,400,000 of cost in relation to the Knickerbocker Company alone did not appear in the $20,942,000, is that right?

A. That is absolutely the case, yes, sir.

Q. Now, will you point out some other items which did
6392 not appear in the $20,942,000, but which represented actual cost of property to the constituent companies at that time?

A. Yalden indicated by his reports and in his testimony that the practice of the old companies was to conceal earnings by writing down the book value of their properties, employing their surplus earnings for that purpose, and in the case of the New York, and Manhattan and Municipal Companies he indicated so plainly sums which had been written off the book value of their property, that it is only reasonable that in endeavoring to arrive at the cost of those properties, that the amount thus written off should be added to what was shown to have been the cost at that time.

Q. Do you refer to amounts which were arbitrarily written off and did not represent actual expenditures for repairs and renewals?

A. I referred to amounts arbitrarily written off over and above anything expended for repairs and renewals.

Q. What figure did he find the companies had written off, say the Manhattan or New York Company?

A. In the case of the New York company on page—I do not happen to have the page at the moment——

Mr. BURR: Yalden's report you are referring to?

The WITNESS: Yalden's testimony in Senate Document 47, he indicated that $2,929,357.97 of surplus appearing in the accounts of the New York Gas Light Company represented profits which had

been written off their property account and which in writing back again, or writing the amounts back again, only restored the
6393 property to its original cost. He distinctly testified to that effect.

At page 434 Mr. Yalden testified respecting the amount which the New York Company had written off. He says finally this was written back by appreciation to the Consolidated Company and the balance shown on the profit and loss resumé on page 707, amounting to $3,646,258.19 is in fact surplus profit of the company beyond the stock capital account. That is Yalden's statement, and of that $3,646,258.19, the account I have already named, $2,929,357.97, was added to the book value of their property at that time, therefore an amount properly to be added to their book value as shown by Yalden, which did not include this amount written back at consolidation, but which excluded it, this amount I say should be added to the $20,942,000 to get even approximately the cost of the property together with others which I will name.

Q. That amount is how much in the case of the New York Gas Light Company?

A. $2,929,357.97.

Q. Which should be written back?

A. Which should be written back.

Q. That is a portion of the amount which should be written back that was arbitrarily written off?

A. Yes, sir.

Q. In the case of the Manhattan Company?

A. Mr. Yalden testified that $2,030,000 had been written off during the period of ten years ending in 1884. That was on page 329.

Q. $2,030,000 had been written off in ten years against a plant costing on the books, how much?

A. $2,400,000.

Q. Pretty nearly the whole value of the plant?

A. Pretty nearly the whole value of the plant, and he also
6594 established the fact that it was the practice not only to write off these amounts, but to maintain the property by charging the cost of such maintenance and wear and tear to the repair account.

Q. Did he testify that as much as eight or ten per cent. annually of the value of the property had been so arbitrarily charged up?

A. He undertook to establish that 12½% was the amount charged off, and the proper amount, confirming his statement by referring to this particular transaction of the Manhattan Company.

Q. Do you recall Professor Bemis' testimony that even if as much as 2 per cent. or anything beyond 2 per cent. was charged up to depreciation per annum it would indicate that the company was adding lavishly to its construction account without having it appear in the construction account?

A. Professor Bemis testified substantially to that effect, as did also Professor Marks.

Q. Does this appear to be a case of that kind?

A. I should say it was decidedly a case of that kind.

Q. The Manhattan Company real estate at the time of consolidation was carried on its books at actually less than the cost, according to its own record, was it not?

A. Yes, to the amount of $21,706.

Q. Although that real estate had been acquired as early as the 50's, had it not?

A. As early as the 30's.

Q. Part in the 30's and part in the 50's?

A. Yes.

Q. What about the writing off for the mains, meters and services for the ten years from 1871 to 1881 on the part of the Manhattan Company?

A. Their accounts as brought down in his tables by Yalden, indicate that $768,000 was written off from the mains, meters
6395 and services alone during the ten years from 1871 to 1881.

Q. Well, now, in order to see if this was justified or not, does not Mr. Yalden testify that these plants of the Manhattan Company off which over $2,000,000 was charged in ten years, and against the original cost of $2,400,000, were at the time of consolidation practically as good as new?

A. He testified specifically to that fact, that they were as good as new, and there were other witnesses who testified to the same effect at the same hearing.

Q. And at the time of consolidation is it not a fact that amounts which had been arbitrarily charged off in this manner were charged back on the books of the company, the Consolidated Company, in some instances?

A. Yes.

Q. So as to restore construction account to the proper figure?

A. Yes.

Q. Take the Harlem Company, what do you find as to the filling in of the water front property of that company, was that charged to construction account, as it should have been?

A. Mr. Moss, the vice-president of that company, testified that the filling in of the water front property and the filling of bulkheads and expenditures for mains and construction of other kinds were paid out of earnings.

Q. And that they were not charged to construction or added to property account at all?

A. That is the case.

Mr. BURR: What is the page?

The WITNESS: 234, 325, 335 and 331. On page 331 he testified that the capacity of the plants had been brought from one
6396 million to two million feet, the greater part being charged expense account.

Q. In other words, the capacity of the Harlem plant was doubled with practically no charge whatever to property account, or addition to property on that account?

A. That is the case according to the testimony, yes, sir.

Q. Now, does any of this additional plant or property that resulted from the use of the New York Gas Light Company surplus, or

from the addition to property or writing down of property by the Manhattan Company to which you have testified, or the additional property which accrued to the Harlem Company and was charged to expense account, when they doubled the capacity of their plant, appear at all in the $20,942,000?

A. Not a dollar of it.

Q. Now, have you prepared a table here showing the appraised value of the plant and property transferred to the Consolidated Gas Company in 1884, $29,994,000, and deducted from that the appreciation in the value of land only, from the figures as they appear on the books of the constituent companies, as compared with the figures at which the land was appraised in 1884?

A. Yes.

Q. And that shows a balance of $23,039,971.10 after deducting the appreciation in the value of land only?

A. Yes, sir.

Q. So that the property of the Consolidated Company appraised at $29,994,000 in 1884, if you deduct the appreciation of land over cost, leaves a balance of only $23,039,971.10 as against the figures carried on the books of five of the companies at $20,942,632.85?

A. That is the case.

Q. Now, to this $20,942,632.85 in this table have you added the additional expenditures and costs for the properties of the Knickerbocker Company, the New York Gas Light Company, the
6397 Manhattan Gaslight Company and the Municipal Company which you have been able to identify as you have stated?

A. I have added those amounts, yes, sir, reaching a total of $29,106,098.56 and to that total, of course, would have to be added, if we knew the amount, whatever was expended by the Harlem Company for doubling the capacity of their plant, which they charged to expense account, and in filling in their water front and constructing bulkheads and charged to expense account, and other similar expenditures not shown in their construction account, and construction by all of the other companies that may have been charged to their repair accounts, and therefore, not included in Yalden's statement, if known would have to be added to this total.

Q. This total, taking the figures of the books of the original five companies, $20,942,682.85 and adding these various items which you have amounts altogether to $29,106,098.56, and that includes no appreciation of real estate, does it?

A. Not a dollar.

Q. And it does not include the cost of doubling the capacity of the Harlem plant without any cost to property?

A. No.

Q. And pretty nearly reaches the $29,944,000 at which all the property was appraised in 1884, does it not?

A. It does.

Q. From your investigations are you prepared to say that the $29,994,000 including the appreciation of real estate represents more than the actual cost to the companies originally of their plant, property and real estate?

Mr. BURR: Objected to as incompetent and immaterial.

6398 The MASTER: Well, I suppose it is a matter of argument.

Mr. MATHEWSON: The witness has made a very careful examination of the record, as you can see, and other witnesses have drawn their conclusions, and I think he should be allowed to state it.

The MASTER: He may state it.

Mr. BURR: Exception.

A. The result of my examination of the testimony taken before the Senate Committee in 1885, is that the $29,994,000 is considerably less than the cost of the property of the old companies.

Q. Now, Mr. Carter in testing the valuations of the appraisals of $29,994,000 in 1884, did you examine the figures of the Equitable and Mutual companies which appeared in Senate Document 47 of 1886, and which were not questioned by Mr. Yalden?

A. I did and made some calculations to determine the amount of the investment of those companies per million feet of capacity as testified to by them, and compared the result with the valuation per million of capacity placed upon the property of the Consolidated Company.

Q. Is this table which you now produce such a compromise?

A. Well, the table that you have deals with the Mutual Company only and shows in substance that dealing only with such assets of that company as correspond with the property included in the $29,-994,000 of Consolidated Company valuation, the actual investment would amount to $6,056,432.17, which would be $1,514,100 per million cubic feet capacity, at which rate the 28,000,000 feet of capacity of the Consolidated Company would have amounted to $42,-394,800 instead of the $29,994,000. In the accounts of the

6399 Equitable Company the figures differed somewhat, although the total value of the Equitable Gas Light Company property per million feet of capacity was $1,148,900 against $1,067,900 per million feet of capacity of the Consolidated plant and property.

Q. And that also exceeded the value per million of capacity, didn't it?

A. Yes, sir, and of course in making that comparison it would be unfavorable to the Consolidated Company for the reason that the Consolidated had of its entire plant fifty per cent. coal gas plant, whereas both the Equitable and Mutual Companies had water gas plants, which are admittedly less expensive to construct than a coal gas plant.

Q. And did you find that Mr. Yalden criticized the value of the property of the Equitable and Mutual companies unfavorably?

A. Not a word of criticism unfavorable to either of the companies. And because the Equitable Company had been operating but a short time, and their property had been purchased, both land, plant, mains and services within a comparatively short time of the date of this investigation, therefore, their values would probably more closely reflect conditions at that time and costs at that time, than any other companies.

Q. Now, you find that the mains of the Consolidated Company

were appraised in 1884 at a cost of pipe of somewhat in the neighborhood of thirty dollars per ton, was it?

A. Yes, sir.

Q. Did you find that in that appraisal of 1884 account was taken of the fact that pipe during the time that a large amount of the mains of the constituent companies were laid, was costing as high as fifty dollars, sixty dollars, seventy dollars, or even eighty dollars a ton, as defendant's witnesses have admitted?

6400 A. No evidence of that sort whatever. On the other hand, I did make a comparison with the cost of mains of the Equitable Company, which demonstrated that the appraised value of the mains of the Consolidated Company in 1884 agreed almost exactly with the cost values of the Equitable Company mains laid at about that time, within two or three years of the investigation of 1886.

Q. As to the appraisal at that time, do you find anything, any testimony, as to whether the appraisal covers the operating plants, or as to whether useless things were appraised?

A. The testimony was very distinct that no useless or abandoned property or plant was valued in the appraised.

Q. Now the defendant's witnesses testified as to certain observations of Mr. Kennedy, who was president of the Mutual Company, which did not go into this consolidation and still exists. What do you find that Mr. Kennedy states at page 413, as to the value of the Manhattan plants as they appear in the appraisal of $29,994,000?

A. Mr. Kennedy testified on page 412 of Senate Document 47 that nothing useless was appraised; and on page 413 that the schedule of the Manhattan plant be considered a very fair appraisal of the value of the plant; and again on page 414, he stated that in his opinion the appraisement of the property of the constituent companies was a fair one. On page—it is not given here, but I can find it—he testified that the plants of the Manhattan Company that comprised the 14th and 18th streets plants were as fine as any of the kind in existence.

Q. This was the same Mr. Kennedy whose testimony was quoted by the defendants, was it not, who testified that these appraisements in 1884 were fair ones of the plants of the constituent companies?

A. Yes, sir.

6401 Q. Do you remember what General Roome, the chief engineer of the Consolidated Gas Company, testified would be required to convert the capacity of the Consolidated Gas Company into thirty-two million or thirty-three million feet per day?

A. He testified that having all the land and buildings and most of the apparatus necessary for increasing the capacity of the plant that he could add five million feet capacity at an outlay of about a million dollars at that time, raising it from 28,000,000 to 33,000,000 feet per day.

Mr. BURR: What is the page?

The WITNESS: Page 522.

Q. Now, referring back for a moment to the Manhattan Gas Light Company, Mr. Yalden's summary at pages 683-684, in which he testified that there was written off for meters and services the sum

of $768,517.96, within ten years, how much do you find during that period there was added to the account for mains?

A. In certain years nothing whatever.

Q. Yes, but for other periods?

A. No figures appearing. The addition during that period amounted to but $147,630.70.

Q. So that in spite of the growth of the Manhattan Gas Light Company, and it being a prosperous company at that period, the mains' account, book value of the property, was diminished by over six hundred thousand dollars, was it not, during that period?

A. It was, yes, sir.

Q. Instead of being added to and showing a larger property account than at the beginning?

A. As it logically would have done if the books had shown the actual value of their property.

6402 At 5:20 P. M. adjourned to Tuesday, January 29, 1907, at 11:00 A. M.

Last Exhibits:

Complainant's, 367.
State's, OOO.
City's, 236.

6403 Circuit Court of the United States, Southern District of New York.

CONSOLIDATED GAS COMPANY OF NEW YORK, Complainant,

vs.

JULIUS M. MAYER, as Attorney General of the State of New York; WILLIAM TRAVERS JEROME, as District Attorney of New York County; FREDERICK E. GUNNISON, JOHN C. DAVIES, and LUCIAN L. SHEDDEN, Constituting the New York State Commission of Gas and Electricity, and THE CITY OF NEW YORK, Defendants.

Before Arthur H. Masten, Special Master.

NEW YORK, *January 29th*, 1907.

Met pursuant to adjournment.
Present: The Master, Mr. Mathewson, Mr. Burr, Mr. Kirby.

6404 Mr. MATHEWSON: The statement or schedule prepared by Mr. Carter and which he produced at page 6396 of the minutes was omitted in some manner in the minutes, and I would like to have it spread in now. It is as follows:

Appraised value of plant and property transferred to Consolidated Company in 1884		$29,994,000.00
Less appreciation in value of land—appraised value in 1884 over book value		6,954,028.90
Balance		23,039,971.10
Figures at which certain plant and property transferred to Consolidated Company in 1884 was carried on the books of the constituent companies (excluding those of the Knickerbocker Company) as per Yalden		20,942,632.85
Knickerbocker Co., cost	$3,210,000.00	
On books Municipal Co	810,000.00	2,400,000.00
N. Y. Gas Light Co., amount property was written down below cost and written back at time of consolidation, as per Yalden's statement		2,929,357.97
Manhattan Gas Light Co., amount written off although plant was as good as new at consolidation, as Yalden states		2,030,000.00
Municipal Company, amount written off but written back at consolidation		804,107.74
Total		$29,106,098.56

6405 To which should be added most of the cost of doubling the capacity of Harlem Plant which was charged to Expense Account; also cost of filling in waterfront and constructing bulkheads, etc., charged to Expense Account; and other similar expenditure not shown in the Construction Account of that Company, amount unknown.

Such construction by all the above companies as was charged to repairs and therefore was not indicated in Yalden's summaries—if known—would have to be added to the above total.

ROBERT A. CARTER resumed.

By Mr. MATHEWSON:

Q. Mr. Carter, on the subject of arbitrary charging down of the property of various constituent companies so as to produce the sum of $20,942,000, excluding the Knickerbocker, will you quote Mr. Yalden's testimony at page 438 of Senate Document 47?

A. Mr. Yalden said at that point:

"The methods they used in keeping their accounts previously by writing to the debit of profit and loss to the credit of appreciation account, and so lessening the actual cost of their property amounting to such a sum that enabled them to write it back again and reinstate the property at something like what it cost."

Q. The writing back again to which Mr. Yalden refers was the raising of the value of the property above the $20,942,000 at the time of consolidation, was it not?

A. It was to that he had reference.

Q. Now, what does Mr. Yalden say at page 440?

A. Mr. Yalden says: "Furthermore this depreciation ac-
6406 count, although it was called such was really an account for no other purpose practically than to hide away some of the profits until the opportunity came for them to increase the capital stock from it, there was a great deal more put into it than was necessary."

Q. And what is the language of Mr. Yalden on page 434 of the Report of 1886?

A. "The company——"

Q. Which company was he referring to?

A. The New York Gas Light Company. "The Company was, many years ago (similarly to the Manhattan Co.) in the habit of transferring from their profit and loss account sundry items to provide for depreciation and wear and tear of property, which in the aggregate amounted to a very considerable sum.

Finally this was written back by appreciation to the Consolidated Company and the balance shown on the profit and loss resume on page 707 amounting to $3,646,258.19 is in fact the surplus profit of the company beyond the stock capital account.

Q. And at page 361 what does Mr. Yalden testify respecting the Manhattan Company?

A. As follows: "In the early part of 1857, and continuing until October, 1863, the company was in the habit of transferring, at certain periods, an amount from profit and loss to the credit of depreciation account, creating a reserve fund to meet the wear and tear of the various properties and works, and during these years the amounts so charged to profit and loss amounted to nearly $1,000,000.

It seems, however, that the company having also provided for alterations and imprpovements by charging such expenses to the profit
and loss account, subsequently by resolution of the board
6407 of directors in November, 1863, they transferred $756,288.51 to the profit and loss account."

Q. Would, then, Mr. Marks' statement that when companies are prosperous they are likely to charge down lavishly appear to have been followed in this case?

A. It would appear to have been followed.

Q. Now, were these companies prosperous during that period?

Mr. BURR: Objected to.

Q. I do not mean to have you go into details, but merely to state generally, as evidenced by the earnings and disbursements according to reports, in the nature of dividends.

Mr. KIRBY: I also object to this. Prosperous is a wide term.

Mr. BURR: I would like to have you define what you mean by prosperous.

Mr. MATHEWSON: I know when I am prosperous, when I have money in the bank.

Mr. BURR: We claim that the Consolidated Gas Company is extremely prosperous to-day, and you claim that——

Mr. MATHEWSON: I will accept the witness' construction of what Mr. Marks may have meant in his statement that companies charge down lavishly when prosperous. I will take the answer, anyway.

A. The statement of the company as shown in Yalden's report indicates that they were extremely prosperous.

Q. And paying large dividends?

A. Paying very large dividends indeed; as high as fifty,
6408 and sixty, and seventy per cent. per annum, and higher even.

Q. And gas from 1825 to 1880 ran from ten dollars a thousand to three dollars, something like that?

A. Yes, sir.

Q. Can you state Mr. Rowland's qualifications as given by him in this testimony of 1886?

A. Yes, sir.

Mr. BURR: I object to that as being incompetent, irrelevant and immaterial, the witness not being shown to be qualified to testify to Mr. Rowland's qualifications.

Mr. MATHEWSON: He is simply quoting from the same report which you have quoted from.

Mr. BURR: You are asking him to read what Mr. Yalden said with regard to Mr. Rowland?

Mr. MATHEWSON: No, I am asking him to read a statement from that very book as to Rowland's qualifications, that is all, which you have quoted from through your own witnesses.

Mr. BURR: From which part of the book, from the report of the Committee?

Mr. MATHEWSON: No, you did not confine yourselves to the report of the Committee.

Mr. BURR: We certainly will not after this, I can assure you, but I would like to know what particular part of the book you are referring to, and whose testimony it is.

Q. Just answer the question.

A. Mr. Rowland stated with respect to his qualifications:

"I built the Municipal Gas Light Company's works at the
6409 foot of 44th street and also the Knickerbocker works at 99th street and Second avenue; I rebuilt the New York Gas Works almost entirely; I built the Nassau Company's works of Brooklyn, Long Island; I built a large gas works for the Boston Gas Light Company; I have built a number of small gas works at different parts of the State; I can hardly enumerate them, I don't remember them."

Mr. BURR: That is Mr. Rowland's own testimony as to his qualifications, and it appears in Senate Document 47.

Mr. MATHEWSON: Yes, and that is all

Q. Now, you referred yesterday to the fact that the buildings as appraised by Mr. Mayer included foundations of apparatus in every case, and as appraised by Mr. Rowland in 1884, a great part of them did not include apparatus, and that therefore there could be no comparison. Is it not a fact that the capacity of the Consolidated Gas Company has substantially doubled since 1884 so far as output is concerned?

A. Yes, sir, it has.

Q. And is it not the fact therefore that there are great amounts of foundations for apparatus in existence now which were not in existence in 1884?

A. That is unquestionably the case, yes, sir.

Q. And do you understand that those were included by Mr. Mayer in his value of buildings also?

A. They are.

Q. From your knowledge of the buildings and the changes of the apparatus and the changes in foundations of apparatus as between 1884 and date, is it possible, in your judgment, to make an intelligent comparison by taking Mr. Rowland's valuation
6410 of buildings and comparing it with Mr. Mayer's valuation of buildings and apparatus as they now exist?

A. No such comparison is possible.

Q. Now Professor Bemis has endeavored to account for something by suggesting that the plants of the Consolidated or some of them have been changed from coal gas to water gas plants since 1884. Is that so?

A. No, sir.

Q. Your attention has been called by the defendants in various exhibits to the fact that in tax reports or petitions for revision of franchise assessments, the value of the property covered by such franchise assessments was stated to be something like $4,200,000 or in that neighborhood, repeatedly. What is the explanation of that, Mr. Carter?

Mr. KIRBY: Objected to as not proper rebuttal.

The MASTER: My recollection was that you went into that on the direct-examination of Mr. Carter before, very fully.

Mr. MATHEWSON: No, these tax reports or petitions for revision were put in evidence by the defendants in their own case and they called attention to the fact that in those there appeared statements that the value of the franchises and so on should not be assessed at more than about $4,200,000, and they also referred to evidence of Mr. H. E. Gawtrey in that regard. Now I am merely asking this witness what the explanation of that figure is.

Mr. BURR: You asked him at the time very fully.

Mr. MATHEWSON: No, they were not in at that time and I could not have asked him. They were put in as part of your case.

6411 Mr. BURR: When I called Mr. Carter as a witness for the defense, I asked him as to some papers I showed him, and you then asked him very fully as to how he made the figures, and he said he consulted with counsel and named the counsel, and I asked him to produce the data and memoranda on which he made up the figures, but I have not seen them.

Mr. MATHEWSON: Well, I only have about five minutes on this line, but I think I am entitled in my case to rebut those inferences which you sought to draw from the testimony you introduced.

The MASTER: Well, in view of counsel's statement that it is very short, it will be quicker to take it than to look it up, to see whether or not it is strictly rebuttal, although I am inclined to think you are right about it.

Mr. BURR: Exception.

A. The amount stated in the special franchise report to the State Board of Tax Commissioners to have been the value for purposes of taxation for tangible property in the street was originally furnished to me by Mr. Simpson and——

Q. Well, the figures are the ones which were furnished by Mr. Simpson on his basis of material and labor in soft earth?

A. That is the case.

Q. And simply the tangible property, is not that right?

A. That is absolutely the case.

Mr. BURR: I object to these questions as being leading.

Mr. MATHEWSON: I think they are leading, but I am get-
6412 ting at it a little more briefly than perhaps the witness was going to. He understands the situation even better than I do.

Q. And why was not the value of the intangible right included in your valuation for purposes of taxation?

A. Because the allegation in our applications for *certiorari* and for a reduction of the assessments stated that the law under which the right to use the street was taxed was unconstitutional, and that therefore there could be no taxable value of such rights, however valuable they might be as an asset of an operating company, being in the same class of intangible assets as goodwill, which the courts held not to be taxable, although very valuable in itself.

Mr. BURR: Are you reading from a brief or what?

The WITNESS: Nothing but from a memorandum of my own making, Mr. Burr.

Q. And does that apply to every case in which these figures, or substantially these figures, appear in your petitions for revisions of assessments, or in your tax reports?

A. That was the case, yes, sir.

Q. Some testimony was given in reference to the Milwaukee, Grand Rapids and Detroit companies, showing candle power and price. Have you made any computation as to the cost of illuminating unit, even under these conditions, and of the gas furnished in New York at our candle power?

A. I have, yes, sir, taking Mr. McMillan's testimony. I find that the average price obtained by the Milwaukee, Detroit and Grand Rapids companies to have been 84.95 cents per thou-
6413 sand cubic feet; that the average candle power was 17.8 candles; that the sales per consumer averaged 32,500 cubic feet; the Consolidated Company's sales for 1905, amounting to 34,031 cubic feet; the average candle power of the gas of the Consolidated Company, as shown by the city tests from July 1st to December 31st, 1905, was 24.18 candles; allowing in the case of the McMillan companies a loss of one candle between the station and the district would make their district candle power 16.8 candles, or about 69 per cent. of the candle power of the gas distributed in New York. Using those factors, it would appear that the customers of the Mc-

Millan companies pay $1.23 per thousand for the same illumination furnished by the Consolidated Company.

Mr. KIRBY: I suppose that we will be permitted to put on experts to review this calculation?

Mr. MATHEWSON: It is a matter of calculation, dispute it if you do not like it. You have to prove even the computation of interest in a law suit.

Mr. KIRBY: Yes, anybody can compute interest, but it takes an expert to compute this.

Mr. MATHEWSON: It is figured on the Edgerton basis of proportion of illuminating service to cost.

Mr. KIRBY: Then it should be in the brief.

The WITNESS: The testimony further showed that notwithstanding the low average price of 84.95 cents per thousand, the McMillan customers consumed but 32,500 cubic feet per annum. This, however, is of 16.8 candle power gas.

6414 Q. Well, does it make the illuminating cost per unit greater or less in those cities than in New York, assuming those figures which were put on the record by Mr. McMillan to be correct?

A. Assuming that the consumer is buying illumination, it is costing them more for illumination there than it is costing the consumers in New York City.

Q. Per candle?

A. Per candle. And furthermore, notwithstanding the low price, the consumption per consumer is smaller than it is in New York.

Q. Now, the question was raised as to the change in the oil contract on November 1st, 1905, and as to the effect of the cost, provided the year 1905 had continued at the prices existing in previous contracts. Have you made a computation so you can show how much difference in cost per thousand it would have made if the prices for November and December, 1905, had continued under the old contract, and how much is it, if you can produce it?

A. The difference expressed in cents per thousand is .13 of one cent.

Q. As a matter of fact, Mr. Carter, and bearing on the use of low gravity oil, the Mutual Gas Company which operates in New York City had no part in this contract of November 1st, 1905, had they?

A. No, sir.

Q. And they continued the use of lower grade oil, did they not, in December, 1905?

A. They did, yes, sir.

Q. And the Consolidated at the same time was using practically all of the 34 degree oil, were they not?

A. That is the case, yes, sir.

Q. What was the actual result in that month as to the cost per candle?

6415 A. The actual result of cost of candle power delivered on the district as shown by the City tests was that the cost was greater to the Mutual Company than to the Consolidated Company.

Q. Yes, the Mutual Company's oil averaged them how much in December?

A. 4.04 cents per gallon.

Q. How much did the Consolidated Company's cost?

A. 4.84 cents per gallon.

Q. Reference has been made to H. E. Gawtrey's statement. Referring to the value of property as of $27,400,000 taken over in 1884 instead of $29,994,000, what is the figure which Mr. Gawtrey gives?

A. The figure given by Mr. Gawtrey, $27,649,060 (page 4862) was the value of the tangible property, $29,994,000, less an amount reserved to retire the outstanding obligations of the old companies, $2,329,000, and sundry adjustments amounting to $15,940.

Q. That has no relation then really to the value of the property, $29,994,000?

A. None whatever. It simply is a statement of stock that was issued for each company assuming however the obligations of the outstanding bonds of the old companies and paying for it in that way.

Q. That is accounted for, is it not, in the same way as the difference between the $37,775,000 of capital authorized and the actual amount of $35,000,000 and something of capital actually issued?

A. That is the case.

Q. In other words, certain capital was reserved to retire the debts of the contingent companies which were assumed?

A. That is the case, yes, sir.

Q. Have you read Mr. Lacombe's testimony?

A. Yes, sir.

Q. As to the account with the city?

A. I have, sir.

6416 Q. Do you find that Mr. Lacombe assumes that the company actually delivered to the city three feet per hour?

A. Mr. Lacombe's calculations are most of them based upon an assumption of 3.77 cubic feet per hour for Welsbach lamps and four and one-half cubic feet per hour for open flame lamp. Mr. Lacombe's conclusions are somewhat in error in that he undertakes to demonstrate that deducting from the amount of the company's bill the amount applicable to the payment for gas that the balance is the cost of maintenance, whereas as a matter of fact the balance is the amount available for maintenance or which the company would receive in payment for maintenance.

Q. In other words, the amount of maintenance is assumed to be the difference between that assumed amount of gas delivered and the amount received?

A. And the total amount of the bill.

Q. You previously testified, or Mr. Addicks did, I think, that the amount of gas delivered was not the exact amount which the bill showed?

A. That is the case, yes sir.

Q. In other words, your bills were made out according to your contract, weren't they?

A. Precisely so, according to Mr. Lacombe's Schedule 6, assuming

the consumption of 3.77 cubic feet in the Welsbach lamps and 4½ cubic feet per hour in the open flat-flame lamp the apparent loss to the company for maintenance of the lamp would be $32,072.49.

Q. Correcting the figures to the actual figures which have previously been testified to, do you find that Mr. Lacombe's results differ substantially from the company's?

A. No, in no respect; no, sir.

6417 Q. Prof. Bemis referred to your statement in an affidavit in this case that the services since 1894 have been largely renewed or replaced, with no additional charge to capital except $177,000, and suggested that that meant that you from earnings had increased the construction or property account without showing it, is that the fact?

A. Not at all, sir.

Q. Now, in relation to services, did you pursue any different course than what you described yesterday, merely charging off when you lost or abandoned a service that service at the figure which it was carried on your books, and when you put in a new service, new or to replace an old one, charging that into your property account at the actual cost?

A. That is the method we have always pursued.

Q. But if you removed a long, expensive service and put in a new service, or put in a service when iron is cheaper than when the old service was put it, it might mean a new service at an actual reduction in your property account, might it not?

A. Exactly so.

Q. In other words, the services charged off would exceed in cost the new service put in?

A. In many cases, yes, sir.

Q. Mr. Doane referred to the sales of coke as $3.35 a chaldron, or $4.71 per net ton of 2,000 pounds. Do you know whether that was the ordinary run of coke or whether that was screened coke?

A. That was screened coke.

Q. It did not take into account screenings and the cheaper grades of coke?

A. It did not, no, sir; of which there would be from 15 to 20 per cent.

Q. The defendants brought out the point that the mains on December 31st showed a smaller mileage account than on Oc-

6418 tober 31st, 1901, which is the date at which we have been considering the capital of the company. If you take the mains as of October 31st, 1905, we must take the rest of the properties as of that date, and what would the total result be, greater or less in property account on December 31st or on October 31st?

A. It would be greater on December 31st, taking the total property into account.

Q. And the same would be true at any subsequent date?

A. At any subsequent date, yes, sir.

Q. As a matter of fact, Mr. Doane's figures, to which I call your attention, include, do they not, cost of handling and delivery of the coke?

A. Yes, sir, all the expenses incidental to it.

Q. The defendants have laid stress on the fact that 27.81 miles of the company's mains out of a total of 822 miles were marked "disused." You stated yesterday that where such mains were tempora-lly disused that you considered them part of the assets of the company, didn't you?

A. Yes, sir.

Q. And that when they are really abandoned they are marked off as abandoned and taken out of the property account?

A. Yes.

Q. What is the total value on the books of this 27.81 miles of disused mains as compared with the total value of $7,852,000, on October 31st, 1905?

A. The total value would be $103,207.01.

Q. Of that $103,000 and over, how much would represent mains under six inches which counsel suggested might not be useful for all the future?

A. The value of the mains under six inches disused is $55,869.11.

Q. Have you the average candle power of the company for 1905 according to the works' tests and the city's tests?

A. Yes, sir.

6419 Mr. BURR: Isn't that already shown from their book exhibited in evidence here?

Mr. MATHEWSON: No; no such schedule is in yet.

Mr. KIRBY: If you keep on long enough we will have it up to the moment of stopping, I suppose.

Mr. MATHEWSON: I am not surprised that counsel is worried by this testimony.

Mr. KIRBY: I am not worried at all by the testimony. I am a little concerned about the possibility for cross-examination.

A. I have such a statement.

Q. Is this it?

A. Yes, sir.

Q. This shows the monthly averages for 1905 as attributed to each one of the works of the company and also the city tests attributed to those works, and the average tests, does it not?

A. It shows those figures, yes, sir.

The paper is offered in evidence.

Received in evidence and marked Complainant's Exhibit 368.

Q. Is it possible by having a single station or a single month to get any relative comparison between city's tests and works' tests, or between the general candle power maintained at the works and the candle power delivered to consumers?

A. I should think not, no, sir.

Q. As a matter of fact, these different stations, so-called, 14th street, 21st street, 42nd street, 44th street and 49th street, related to the constituent companies or five of them before the consolidation, didn't they?

A. Yes, sir.

Q. And the city for the purpose of its testing has still
6420 maintained the same names as to the stations and referred to them as 14th street and 21st street, hasn't it?

A. My impression is they refer to them as New York, Manhattan, Harlem, Knickerbocker, I think they still use the name from the old company.

Q. Still using the old name?

A. Yes, sir.

Q. Isn't it a fact that the mains of the company interlock, and the gas runs around so it is impossible to say for a certainty that the gas which reaches the testing station of the city on the old 14th street mains does not contain gas from some other station?

A. It would be impossible to say that it does not, and I am absolutely certain that it does.

Q. For instance, you take the 42nd street station, isn't it a fact that the gas of the 42nd street station before it gets to the city testing station is mixed with other gas at one of the uptown stations?

A. Yes, sir, either 63rd street or 65th street, or both of them.

Q. Now taking the entire year, what is the average at the works, all stations?

A. 25.34 candles.

Q. What is the average at the city testing station?

A. 22.99 candles.

Q. That shows a drop between the works and the testing stations of how much?

A. 2.35 candles.

Q. Referring to the Standard Company, the Mutual, the New Amsterdam, is it not the fact that they serve a comparatively limited territory in the city, that is that they do not go into every street as the Consolidated does?

A. Oh, no, sir, they have restricted territories. Not restricted in the sense of any restrictions being placed upon them, but they are confined within a limited area.

6421 Q. While the Consolidated has to maintain its candle power even to the remote districts?

A. The most remote districts of the city.

Q. Do you understand there is anything in the law which prevents the city from testing your gas at any point it pleases, at any time?

A. On the contrary, my interpretation of the law is it has such a right to test at any remote point in the district supplied by the Consolidated.

Q. Is it your view that the company must maintain a candle power which will show 22 candles at any point?

A. We would not think of doing anything else than that, Mr. Mathewson.

Q. Mr. Burr, for the defendants, offered in evidence the minority report made by Senator Gilbert of the Committee of 1886. Mr. Gilbert in that report refers to the capital of the Mutual Gas Light Company as $4,100,000, and says that it appears that for that they

could produce 4,000,000 cubic feet per day. Is that in fact the capital of the Mutual Company as it appears in that report?

A. It is not, no, sir.

Q. What is it?

A. The actual investment of the Mutual Company as shown by their statement referred to by Yalden was $8,284,515, and eliminating from that anything that possibly could be eliminated on the score of it not being an investment in the gas business, as for exampple, United States bonds and some of their own stock and that sort of thing, would leave at the lowest possible estimate a possible $6,275,904.96 as the investment of the Mutual Company in the gas business, with a capacity of 4,000,000 cubic feet per day.

Q. Do you find that he also assumed an ideal company, costing $15,000,000, and bases that on the names of two witnesses that he mentions?

6422 Mr. BURR: Isn't this all matter of argument and for brief rather than to have it brought out in this way at this time? The report is in evidence and whatever deduction may be drawn, it seems to me, is properly a matter of argument.

The MASTER: It seems to me, Mr. Burr, excepting in so far as there is anything in the report which might involve the calculation of an expert on constructions or the effect to be given to any figure therein appearing. That is the idea on which I consider some of the testimony might be rebuttal, but as to that last question I think your objection is entirely good.

Mr. MATHEWSON: If the Master pleases, the report of the minority was offered in evidence by my friend Mr. Burr, but the evidence was not offered in evidence upon which Senator Gilbert purported to make his report, and the evidence directly contradicts the terms of his report. You could not argue it from the evidence because the evidence is not before this Master until I put it here by questioning this witness. That is the point. I shall not pursue this for more than a moment, but I think I am entitled, am I not, under those circumstances, to ask the question?

The MASTER: I did not understand that the matter about which you were questioning was not in evidence here.

Mr. MATHEWSON: No, it is not.

The MASTER: All right.

A. There was no such testimony given by either of the witnesses quoted by Senator Gilbert.

6423 Mr. BURR: What quotation have you in mind and where does it appear?

Mr. MATHEWSON: Page 47, "upon this testimony a capital of $15,000,000," and so on, "more than suffices to produce a certain number of cubic feet of gas," assuming I suppose the building of an ideal company instead of the six existing companies.

Q. Now he refers to two witnesses and both of those witnesses testify that a million dollars or more per million feet of capacity would be required, don't they?

A. Yes. The two witnesses were Mr. Graham, the President of

the Equitable Gas Light Company, and Mr. Kennedy, the President of the Mutual Company.

Q. Did they testify to any such thing as that?

A. They did not testify to anything of that kind.

Q. You have read all the testimony, haven't you, Mr. Carter?

A. Yes, sir.

Q. Without going into details did you find anything in that testimony to sustain the statements of the minority report as against the findings of the majority?

Mr. BURR: I object to that as incompetent. We must have the evidence here upon which he bases his statement.

The MASTER: That is going pretty far.

Mr. MATHEWSON: Well, all right. In order not to take time and in order that the argument may be produced if desired, I will offer in evidence the balance of the volume, report of the committee of 1886, Senate documents 47 of 1886, including the testimony and other things which have not already been offered.

Mr. BURR: Do you mean to say you offer all the evidence?

6424 Mr. MATHEWSON: Yes, I offer the whole thing that has not already been offered. I think if it meets with the views of counsel that a stipulation on the record that we may refer to it probably would meet the case—you have copies of it—without printing the whole book.

The MASTER: Yes, why not make such stipulation as that—the record may be deemed in evidence for the purpose of reference thereto by either party without the necessity of reprinting it.

Mr. MATHEWSON: The tabulations and reports are printed and contain the figures, and it seems to me that the stipulation suggested meets all requirements.

Mr. BURR: I don't know as to that. You offer it for the purpose of sustaining certain opinions which you have asked Mr. Carter to express with regard to the point, of what was proven before this committee?

Mr. MATHEWSON: No, no. I offer it to show the utter ridiculousness of the proposition advanced by Senator Gilbert in his minority report, and to show the soundness of the conclusions of the majority report which we offered in evidence.

Mr. BURR: Well, I think that ought all be before the court.

Mr. MATHEWSON: Yes. The Court won't read it through except as you may refer to it.

The MASTER: As long as part of it is in the rest of it might as well go in.

Mr. BURR: Yes, let us make a complete report.

Received in evidence as Complainant's Exhibit 369.

6425 Mr. MATHEWSON: That is all I have.

Cross-examination by Mr. KIRBY:

Q. Mr. Carter, I refer you to the resolution of the—I think it is of your Board of Directors, or your Executive Committee. I am not sure which, which you referred to yesterday, as the same appears on page 1466 of the exhibits, being part of City's Exhibit 87. Did I un-

derstand that this was the first resolution of the kind that your company has passed?

A. Yes, sir.

Q. But prior to this time there had been a similar application of funds for such purposes or similar purposes to those set down in this resolution, had there not?

A. There had been.

Q. Was -here any resolution of authorization for the same?

A. There was not. There is no resolution for the authorization of these expenditures, Mr. Kirby.

Q. This resolution then was for what purpose?

A. The closing of one account into another account.

Q. Had you ever had any previous resolution for that purpose?

A. We have not had previously any such account to close it into.

Q. Which is the new account that you had not prior to this time?

A. Renewal and contingency account.

Q. When did that account commence?

A. Commenced in May, 1905.

Q. And what is that account for?

A. It is an account that is credited monthly with the contingent expenses, calculating at 10 cents per thousand cubic feet sold and charged monthly into the operating expense account.

6426 Q. You might designate that as a depreciation account?

A. What its name indicates—a renewal and contingency account.

Q. Is it ever designated, in other companies, as depreciation account or depreciation fund account?

A. I cannot tell you how it is designated in other companies.

Q. What is its purpose?

A. To accumulate a fund which will be used for——

Q. Renewals?

A. To accumulate a fund which will be employed for renewals and contingencies.

Q. That is, for other purposes than new construction?

A. Always other purposes than new construction.

Q. This account was never carried on the books of your company prior to this time under another name?

A. To which account are you referring?

Q. The renewal and contingency account?

A. No, sir.

Q. The amount set down in this resolution was $282,219.67. Was that money actually spent?

A. As I have already testified we do not attempt to show in that account expenditures.

Q. No, I did not ask you what you attempt to show there, I asked if your money was actually spent?

A. I should testify yes, that it was all spent.

Q. Now, can you tell me for what it was spent?

A. To replace the property that was written off during the year of which that formed a summary at the end of the year, that entry.

Q. Can you tell me for what specific apparatus or parts of plant

or mains or any part of your producing or distributing system it was spent?

A. It was expended on the plant corresponding to the items enumerated in that entry.

6427 Q. By that you mean that the sum of $3,424 was spent for renewals of plants, that the sum of $90,561.54 was spent for the renewals of mains, that the sum of $37,401 was spent for the renewal of services and so on as set forth in that resolution?

A. I might qualify that to this extent by saying that if it was not expended during that identical calendar period it certainly has been by this time.

Q. So that the resolution and the amount set down therein took not only of that which had been done but that which was intended to be done?

A. In a measure. We might abandon a main in December, 1905, and not relay that main until January, 1906, in which case the expenditure for the replacement of that main would not appear in the disbursements of 1905.

Q. Then the amount which under this resolution you charged off from your renewal and contingency account and which is there set down as $282,219.67, and which is set down in State's Exhibit L under the heading "renewals, 1905," as $282,219.67, being the same, may or may not indicate moneys actually expended?

A. It is bound to do so ultimately if not within as I say identically that period.

Q. Assume that after the passing of this resolution for some cause unforeseen at that time the work which was then contemplated was not either started or completed, in that instance you would have no expenditure, would you?

A. Well, that was hardly a conceivable condition to my mind, Mr. Kirby.

Q. Now, what you are endeavoring to show I think is that these renewals may lap over into the next year?

A. Or may have been carried over from the preceding year.

6428 Q. Well, if carried over from the preceding year they would have been charged up to the renewal item of the preceding year?

A. Exactly.

Q. But if they lapped over as in this instance—by this instance I mean the resolution we have been referring to—you will not charge them in the renewal account for the year 1906?

A. No.

Q. Having been cared for by that resolution?

A. That would be the case.

Q. And if something set down therein was not carried into effect you would make an adjustment, I take it, in the next year's account?

A. If anything came specifically to our attention of that character that would be done.

Q. So taking this renewal item over the entire period from the year 1884, if there had been any errors of that kind the chances are

that an adjustment would have been made and the total would stand as correct?

A. Yes, sir.

Q. Now prior to this year, or rather, 1905, the time when this resolution was passed, having no renewal and contingency account I take it that you designated as your renewals account the moneys which you actually expended for that which your company considered renewals?

A. There was no change in 1905, Mr. Kirby with respect to our method of charging up our depreciation as it accrued. The only charge that occurred in 1905 was in the creation of the renewal and contingency account against which these items were charged at the end of the year instead of being charged to profit and loss account.

Q. So that in 1905 you took it out of this fund which you had created by your 10 cents per thousand cubic feet?

A. Yes.

Q. And theretofore at the end of the year you charged it
6429 in your profit and loss account?

A. That is the case, yes, sir.

Q. But the renewal account stands today as it stood since 1884?

A. Yes, sir.

Q. And indicates the actual amount which has been spent each year on renewals of your property, renewals in the sense which you consider renewals?

A. Yes, sir, that is the case.

Q. Now then that does not indicate—that is that amount as set down in your property may or may not have been, does it?

A. Covering the period of twenty years?

Q. Yes.

A. It indicates such depreciation as became evident during that period in any manner or shape.

Q. It indicates as far as your books are concerned, and looking only to the books, taking into account at this time no knowledge which you may have of the plant by inspection thereof that the property may or may have depreciated more than the amount spent for renewals and repairs, may it not?

Mr. MATHEWSON:

Q. Would the book account itself show anything on that subject?

A. The book account would indicate nothing whatever; inspection of the plant might.

By Mr. KIRBY:

Q. We are confining ourselves to the book account?

A. The book account would not indicate that, no.

Q. In other words the plant may have, for all the books would show, have been "tottering to its final collapse?"

A. Except as the amount, Mr. Kirby, expended would appear to have been adequate to maintain it at a high standard of efficiency and in good repair.

6430 Q. Now, you are using the mind of an engineer, and I am trying to keep ourselves to that of an accountant.

Mr. MATHEWSON: Even an accountant may know something.
Mr. BURR: But he never built a gas works.

Q. That is true, is it not?

A. That is quite true. Of course, you will agree that in the course of twenty years, starting with a plant or with several plants all of which had been in operation for a great many years that a great many things would transpire during the twenty odd years, during the history of the Consolidated Company, that would not transpire in the history of a company that started *de novo* twenty years ago.

Q. Quite so. Now you, with that knowledge which has come to you as one familiar with figures, as also one who has been closely associated with engineers and familiar with gas works on your own account and the company's experts have also testified that the plants are in first-class condition, I presume that taking this in consideration you considered that the amount spent in repairs and renewals has been sufficient to offset all depreciation?

A. Well, I would not like to say that, Mr. Kirby, because men more experienced than myself tell me that it has not and that there is still a condition that we should provide against.

Q. So you may still have them "tottering," for all that you know?

A. Not in any respect apparent in the plant as it exists to-day; the plant as it exists to-day giving no indication of it whatever, but nevertheless long experience leads them to believe that conditions are liable to arise in the future that the company should provide
6431 for by a suitable reserve which I consider no reflection whatever upon the condition of our plants as they stand to-day.

Q. They seem all right, but they may be all wrong?

A. They seem and are all right, but for reasons which we are unable to foresee now we may have to replace them with other kinds or other types of gas-making apparatus at some time that we know not of to-day and that we should be prepared to do that and that the business has got to provide for that.

Q. I call your attention to Complainant's Exhibit 79, to which you made reference yesterday, being page 347-A of exhibits, and ask you if you will look with me at the second column thereof, headed "Construction since Consolidation." Now, excluding the item of real estate with which we are not concerned at this time, I take it that all the totals set down in that column indicate the actual expenditure has been made, whether it be for new construction or whether it be for renewal?

A. That is the case; yes, sir.

Q. Now, am I not also right in assuming that the total for those expenditures, excluding as we may in the expenditure, the expenditure for real estate, comes from two sources, from capital and from earnings?

A. That is the case, yes, sir.

Q. Now, coming to the third column, headed "Depreciation (renewals) since Consolidation" I take it that all of the items set down therein indicate the amount expended for other new construction?

A. That is the case, yes, sir.

Q. Now, will you state to me from what source the expenditures in that column came from, from capital or from earnings?

A. From earnings, Mr. Kirby.

6432 Q. And the amount spent for new construction and spent out of capital is set down under the heading "Net increase," being the fourth column of this table?

A. That is correct, yes, sir.

Q. The sixth column, headed "Expenditures and Repairs since Consolidation, to October 31st, 1905," represents that which was not spent either for new construction or for renewals and which amount was spent out of earnings?

A. Yes, sir.

Q. So that the total of amount spent for new construction, being the total set down in the column under the heading "Net increase," the amount spent for renewals, being the total set down under the third column, and the amount spent for repairs, being the total set down under the sixth column, would represent the total amount spent by your company out of capital and earnings since 1884 for other than labor and expenses, and in the actual manufacture of your product?

A. And other expenses of manufacture and distribution than these.

Mr. MATHEWSON: These items here of property, Mr. Kirby, you ought to know, represent not all our items of property; that is the expenditure on those particular items; because we have material and supplies, working capital and other things which are not in here at all.

Mr. KIRBY: Very good, we will exclude them, and such items as are not in here are those which I think Mr. Carter had reference to.

The WITNESS: Yes, anything, of course, not covered in this table.

6433 Q. Now, taking up the amounts spent for new construction, I ask you if you can indicate to me just what you mean by new construction. To aid us, I might sug-est an example to you. If you put up an entirely new building I presume that would be new construction, would it not?

A. Yes, sir.

Q. If you installed an entirely new apparatus I take it that would be new construction?

A. Not replacing apparatus already in use?

Q. No.

A. That would be new construction, yes.

Q. And a new additional piece of apparatus?

A. Yes, sir; that would be new construction.

Q. If you put in a new additional main, I take it that would be new construction?

A. Yes, sir.

Q. And all those expenditures would be out of capital and not out of earnings?

A. That is the case.

Q. Let us assume that we have a certain number of benches at a

station, and we add to that number, the addition would be new construction, would it not?

A. Yes, sir.

Q. Or if we add additional water gas apparatus, that would be new construction?

A. Yes.

Q. Now suppose that instead of adding to the old apparatus you tear the old out and put up apparatus with greater capacity, but no greater efficiency, would that be new construction?

A. The cost of the new apparatus and of its installation would be charged to construction account, and the value at which the apparatus dismantled was carried in our construction account would be deducted from it.

Q. So that the total of the new apparatus would not be charged to new construction?

A. Not as an addition to new construction, assuming that the new apparatus cost the same amount at which the old apparatus was carried on the books, the result of the entries would leave the total value of the plant account identically the same as it was before.

6434

Q. Quite so. Now would that new apparatus be paid for out of capital or out of earnings?

A. In that event the new apparatus would be paid for out of earnings.

Q. And that would be the case irrespective of the cause which necessitated the change?

A. Yes, it would be irrespective of the cause which necessitated the change. Assuming always that it is a piece of apparatus replacing or superseding a piece of apparatus already in use and of a corresponding value, my answer is that there would be no change in the status of the capital account and that the cost of the new apparatus would be taken out of the earnings of the company.

Q. If, let us say, a community ten years ago was taking a certain number of cubic feet of gas and demanded no more, and that community so grew that it would need to-day two, three, four or five times the number of cubic feet of gas which it did at that time, and your apparatus while efficient was not large enough to produce the number of cubic feet of gas necessary to supply that community, and your real estate holdings were such that you could not extend your plant and build additional units, and that it, therefore became necessary for you to tear down your present apparatus, which was in first-class condition and as efficient as the present apparatus which you would have to instal, and you did tear down that old apparatus so as to serve the community; would the entire cost of that larger apparatus be charged to new construction or would it be charged to renewals?

6435

A. The cost of the new apparatus to the extent of the value of the old apparatus would be charged to renewals.

Q. And what value would you give to the old apparatus?

A. The value at which it stood upon the books—its cost value.

Q. And only to that extent would you pay for the new apparatus out of earnings?

A. Only to that extent, to the extent of the value of the old apparatus.

Q. So you would make no distinction between the supersession of apparatus or buildings or what was not, due to increased demand of the community, or due to unfitness of the apparatus for causes of inefficiency or non-workability, or things of that sort?

A. No discrimination, no, sir.

Q. Now, you carry that theory also into the replacement of your mains, I take it.

A. Yes, sir.

Q. Assume a case there; you run a six-inch main into a small community; it is sufficient for the demands of consumers at the time it is put down; that demand grows; you need twice the capacity which you formerly did; you put down an additional six-inch main; what is that charged to?

A. An additional six-inch main?

Q. Yes.

A. Capitalized.

Q. Paid for out of capital?

A. Yes.

Q. And new construction, and credited to plant?

A. No, charged to plant.

Q. Yes, charged to plant.

A. Yes.

Q. Assume that instead of putting down a new six-inch main you had replaced the original six-inch main by one which would carry twice the quantity of gas, what would you do in that instance?

A. And take out the old main?

Q. Yes.

A. It would be depreciated to that amount.

6436 Q. And in that instance the cost of the new main would be charged entirely to new construction, but——

A. It would be charged entirely to new construction, but the construction account as a result of the transaction would be reduced by charging off the value of the old main.

Q. And paid for not entirely out of capital, but only the difference of the book value of the six-inch main, and the book value of the twelve-inch main would be paid for out of capital?

A. That is the case.

Q. In other words, you put upon the consumers such cost and expense which might not have been placed thereon if the company had had foresight enough to have installed a large main in the first instance.

A. You must bear in mind that if that foresight saw so far ahead that the ultimate installation of the large main was anticipated, that the customers would have to bear the burden of that main for a great many years before it was required.

Q. That might be true, but if that twelve-inch main or nine-inch main, whatever it might be—I have not figured what the capacity

of twice six would be—had been installed in the first instance, the entire cost of installation would have been out of capital, would it not?

A. Yes, sir.

Q. I neglected to ask you, although I think there is no doubt whatever in our minds, but the total of this third column, depreciation and renewals since consolidation, represents moneys actually expended?

A. Yes, sir.

Q. With the small qualifications which you referred to?

A. Yes.

Mr. MATHEWSON: There are no qualifications to that, Mr. Kirby.

6437 Mr. KIRBY: Yes, that includes, I take it, 1905, and 1905 includes the amount set down in Exhibit L, which is the identical amount set down in the resolution, and which amount as set down in the resolution has certain small items going to make it up, and all of the amounts of the smaller items may not as yet have been expended, as Mr. Carter has testified. I do not think we misunderstood each other.

The WITNESS: It would be a negligible and small amount, possibly spent in January, 1906.

Mr. KIRBY: And which Mr. Carter has said spread over that entire period might be entirely wiped out.

The WITNESS: Yes.

Q. Now, I have endeavored to draw a line between renewals and new construction. Let us see if it is possible to understand each other on the line between renewals and repairs; so we may have a concrete example before us, I will ask if you will take up the alterations of the 21st street plant, which you spoke about yesterday. You have stated you were quite familiar with what these alterations were. I ask if you will tell us when they were made and what they were, and such part of them as was charged to new construction and such part as was charged to renewal, and such as was charged to repairs?

A. The facts, as nearly as I recall them, briefly, are that certain oil gas benches at the 21st street station were dismantled and generating apparatus of the Lowe type installed in their place. To enable this to be done, the walls of the building had to be raised and a new roof put upon the building.

6438 Q. So that I may not lose the trend of this, if you have not stated it all, we will take up just as far as you have gone. You say the walls were raised. Do you know which walls were raised?

A. The walls of what was known as the generator house on the block bounded by Avenue A, East River, 21st and 22nd streets.

Q. And were all four walls of that building raised?

A. I am under the impression that they were; I am not quite positive on that point.

Q. Is it not a fact that the new roof of which you speak is supported by Phœnix columns?

A. Yes.

Q. And if that is so, are you still of the opinion that all four walls were raised?

A. I have not expressed the opinion that they were; I don't know whether they were or not. My impression is that they were, all four, but I am not sure of it.

Q. Don't you think that would produce a rather unusual arrangement of the buildings or rooms under one large roof, which is supported by Phœnix columns, and which, therefore, needs no support from the old walls of the houses which are now underneath?

A. The building on that block is rather a combination of buildings formerly separated, and it is because I feel a little doubtful about that, and am not perfectly familiar with all the changes, not having particularly noted them at the time——

Q. I took it up because you referred to it yesterday.

A. I referred to the records in the books of what was done at that time at that station.

Q. Well, now, what do your records tell you?

A. The records tell me that the walls of the building were raised, that a new roof was placed upon it, and certain apparatus was dismantled, and certain new apparatus was installed.

6439 Q. But you cannot tell us in detail which walls were raised.

A. Whatever walls had to be raised to accommodate the new apparatus that was installed there, were the walls that were raised.

Q. Yes, but you do not know which walls had to be raised to take care of the new apparatus?

A. No.

Mr. MATHEWSON: My question was merely directed to the point that this building has substantially changed since Mr. Rowland had made his valuation.

Mr. KIRBY: It was directed toward certain other points and Mr. Carter under your kindly questioning seemed to be entirely familiar with the construction of the building and apparatus and what was there and what was not there.

Mr. MATHEWSON: No, you come to another question when you reach the apparatus.

Mr. KIRBY: We will reach that in good time.

Q. Do you know what happened to the roofs of these buildings when this new and larger roof was thrown over all the buildings?

A. What happened to the roofs? A. Yes. Do you mean what disposition was made of the old roofs?

Q. Yes. Are they still there?

A. Why, no, the old roofs were removed.

Q. Now, let us take the method of charging up the different expenses to which the company was put in making this alteration. Here are large columns erected, a new roof thrown over them. Is that new construction?

A. Part of it was new construction and part of it was in the nature of repairs.

Q. Now, how did you draw the line, and where did you draw the line?

6440 A. It was drawn at the time by people who were very familiar with the work and what was done.

Q. But you yourself are not competent to draw that line?

A. At this time? From book records of a transaction fifteen years old?

Q. You cannot tell us to-day where the line was drawn?

A. Only as indicated in the book entries, and I presume it was made in accordance with the facts, which were matters of the knowledge to the people who made those entries at that time.

Q. We will assume it was made in accordance with the facts within the knowledge of the persons familiar with it at that time.

A. I believe it was.

Q. You are familiar with the books?

A. Yes.

Q. I ask you if you can tell us, and if you cannot, you can say so, to what account the cost of putting on this new roof was charged?

A. A part of it was charged to repair account and a part of it to construction account; it was a better roof than was on the building before, and justified the division of the cost of it between those two accounts.

Q. And you would consider the putting on of a new roof, encompassing, if you might say, all these buildings, a repair?

A. I have described what it was. It was not all repair, nor was it all new construction, but the entries in the books recognized the fact or reflected the fact that a better roof had been put upon the building than was there before, which justified a charge of a portion of the cost of that roof to construction account, and such a charge was made.

Q. As a matter of fact, this roof was practically a roof and the walls therefore, and the new columns—it was practically a new building within the limits of which was contained these old buildings?

A. Well, that is your designation of it.

6441 Q. Well, is it not yours?

A. I think that the building was very greatly improved, and its capacity very considerably increased.

Q. Well, we won't differ on that.

A. And that the method by which the accounts recorded what was done was perfectly in harmony with the facts.

Q. Oh, yes, I take it it was in harmony with the facts as those who performed the work and those who had charge of distributing the account thought was proper and right?

A. Yes.

Q. And while I am not trying in any way to state whether or not they were correct I am endeavoring to get those facts.

A. I am endeavoring to give them to you, Mr. Kirby.

Q. But you can simply give them to me in a general way of this kind, and cannot give me any——

A. I can give you the book entries and the figures in detail, if you wish them.

Q. I think it would be most interesting to have them.

Mr. MATHEWSON: That is not the point. Do you want them? A good many things would be interesting.

Mr. KIRBY: Yes, I want them. Mr. Carter seems to have stated his familiarity with the work, and I think inasmuch as he came to a conclusion, we are entitled to the data on which he based his conclusion, and I would like to see the distribution of charges at the time of the alteration of the 21st Street works, to which he made reference yesterday, and which I would not have thought of going into if he had not mentioned it.

Mr. MATHEWSON: And which we would not have thought of going into if Mr. Edgerton had not volunteered the suggestion that
6442 he suspected things were still carried to construction although they had been done away with at 21st Street, that is the reason we went into it.

Mr. KIRBY: I am very glad to know the reason, I did not know it before.

The MASTER: This is very interesting but counsel had better understand that this cross-examination cannot proceed on the theory that I am going to sit an indefinite time.

Mr. KIRBY: I aim to make the cross-examination as brief as possible, notwithstanding the fact that the direct testimony took a day and a half, and Mr. Carter answered at railroad speed, and the record came to us half an hour before the hearing this morning.

Mr. MATHEWSON: We took less than an hour this morning, Mr. Kirby.

Mr. KIRBY: I do not want to pursue this course of questioning if it is not going to be fruitful of any results, Mr. Master, but I think that in the light of yesterday's testimony in reference to the 21st street plant, and Mr. Carter's assumed familiarity with it, that we are entitled to know just what was expended, and when it was expended, and if he doesn't know that he can bring a statement showing it.

The MASTER: I only wish to warn you that the cross-examination of Mr. Carter now cannot proceed on the lines it did before, of calling for various elaborate statements and things from the books, and go on assuming we are going to occupy some days in this examination, because we have not time, and Mr. Mathewson has stated he has several other witnesses to call.

6443 Mr. KIRBY: This is an offer on Mr. Carter's part. Now, if he does not know, and states that his familiarity with the plant is not such that he can tell, I am quite willing that the answer should stand that way. But if he does know, and it is by reason of his knowing that he answered yesterday, then I take it we are entitled to pursue it to its logical conclusion.

The WITNESS: I might explain in a moment how much information I would be able to give you on that subject. The entries by which the dismantled apparatus were taken out of plant account and charged to depreciation account. I have with me now as a memo-

randum, and would be glad to show them to you or read them into the testimony. With respect to the repairs to the building, which account bore a part of the expense of raising the walls and substituting a new roof for the old one, it would be difficult to identify in the cost of repairing buildings in that year, the identical amount that was expended in repairing the generator house. The method, however, by which certain expenses in that connection were distributed is indicated by the entries in the books; and my recollection is that the cost of raising the walls was distributed between the construction and repairs to buildings account on the basis of two-thirds to construction and one-third to repairs to buildings, and that the cost of substituting a new roof for the old one was divided between construction account and repairs to building account on the basis of one-third to construction account and two-thirds to repairs to buildings account. With respect to the dismantling of the
6444 oil gas benches, the amount at which the benches and foundations were carried on the books of the company, was charged off. The benches were carried, to the best of my recollection at $108,000, and that amount was written to depreciation account. The foundations were used as foundations for the new apparatus in whole or in part, and such parts as were not so used was charged off at the value at which that property was carried in the books.

Q. You have those items in regard to dismantling of benches?

A. Yes.

Q. I think it would be relevant and proper to state what those amounts were and how they were charged.

A. In 1901 an entry was made charging off $108,000, "that being the amount"——

Q. Charging off from what?

A. The construction account "that being the amount of the scheduled valuation of sixty benches of six retorts each, to be taken down from block bounded by Avenue A, East River, 21st and 22nd streets, to make room for a new generator plant; each of said benches were inventoried at $1,800, and the valuation of November 11, 1884, inclusive of the foundations. The foundations are not to be removed, but will be utilized as the foundation for the new generator plant."

Mr. MATHEWSON: That quotation is from your books?

The WITNESS: Yes.

Q. Does that memorandum that you have make any reference to walls raised, I mean by that increased in height?

A. I was correct in my testimony to the effect that two-thirds of the cost of raising the walls was charged to construction account.

6445 Q. By raising, you do not mean removing them, but increasing them in height?

A. Increasing them in height, and that one-third of the cost of repairing the roof was charged to construction account.

Q. What do you mean by repairing the roof? There was an entirely new roof put over that part of the plant?

A. Well, I have already testified that I do not know that it was entirely changed.

Q. But whatever it was, that was the way it was charged?

A. It was charged to repairs of buildings, two-thirds of it, and one-third charged to construction account. I think it would have been difficult at that time to have divided it up on the basis of construction and depreciation, for I do not think that any records that the company had showed the value of that roof.

Q. If you did in fact put a new roof on any building would that be a repair or a renewal?

A. It would be a repair, if it was simply the replacing of an old worn-out roof with a new roof and nothing else.

Q. If you tore out part of your benchwork by reason of its having been burned out from some cause due to its use, would that be a repair or a renewal?

A. Well, I would like to have you define that a little more exactly, if you will be good enough, Mr. Kirby.

A. Well, we have certain brick used—— Oh, the substituting of new brick for old firebrick in a retort?

Q. Yes.

A. It is repairs.

Q. If you tore down all of the stack of benches and put a new one in its place?

A. Tore down an entire stack of benches and substituted new benches?

Q. Yes.

A. Of the same design and for the same purpose?

6446 Q. Yes.

A. I think it would depend considerably upon whether there was any great difference between the cost of the new benches and the old, whether we treated them as repairs, or whether we treated it as dismantling of the plant, and substituting of new plant; assuming no considerable difference between the cost of the new and old, the probability is that the expense would go right to repair account; as a matter of fact I don't know of anything of that sort ever having been done in our practice.

Q. You do not draw any close line between your repairs and renewals, do you?

A. We do draw a very close line, we think, but we know very well that there is always included in repairs what might technically be termed renewals of small parts, but as repairs; as for example, the replacement of burnt out fire brick with new firebrick, it is to all intents and purposes a renewal, but it is uniformly considered as a repair.

At 1:05 P. M. adjourned to 2:15 P. M.

After Recess.

ROBERT A. CARTER resumes the stand and further testifies.

Cross-examination by Mr. KIRBY (Continued):

Q. You have spoken of the walls of the 21st street station as having been raised, by which you meant raised up. Do you know whether any of them were razed down, or any of them were removed?

A. I have no knowledge of any, no, sir. I used the term
6447 raised in the sense of being elevated.

Q. So I understood. Yesterday you referred to Mr. Edgerton's testimony where he was considering the value or his appraisal of the 21st street plant, and stated that there were no foundations there upon which apparatus had not been erected and which were not there at the present time. I correctly state your testimony or the sense of it, do I not?

A. Substantially, yes, sir.

Q. Now, I call your attention to the schedule of buildings of 21st street station, to the schedule of buildings as prepared, I believe, by Mr. Mayer, in any event as submitted to counsel for the defendant by Mr. Addicks of the Consolidated Gas Company, of which I have a copy here, my original having been mislaid. The first building is that of the "stove storage and meter proving shop," which is referred to by Mr. Mayer at pages 1370 and 1475 of his testimony, and which has certain description which I will not read on account of its length. After the description comes the words "foundations for machinery." I ask if you will tell me what foundations are in that building and what apparatus stands upon those foundations?

A. My understanding is that the building referred to is on the corner of 22nd street and First avenue, the southeast corner, and my understanding is that there are no foundations nor machinery in that building.

Q. So that when Mr. Edgerton in making his appraisal gave no valuation for foundations in that building, was he correct?

A. Foundations for machinery?

Q. For machinery, I mean; not for the building itself.

A. That is my understanding, yes, sir.

6448 Q. So Mr. Edgerton was not in error in that respect at all events.

A. No error in saying there are foundations there upon which there was no apparatus—that he saw foundations there upon which he saw no apparatus, I think he was in error in that statement.

Q. If you will refer to Mr. Edgerton's testimony you will find that he did not use that language, it was Mr. Mathewson who used the language and asked him the question, and that thereafter Mr. Edgerton in answer to a question of mine stated distinctly that he neither saw the foundations nor any evidence of them. I also call your attention to the description in this same schedule, to the buildings, meter repair shop and office referred to by Mr. Mayer at the same pages which I have already given, and after the description of which there is likewise the statement foundations in that building for machinery, or machinery upon foundations?

A. I presume that that building is on the corner of 21st street and F-rst avenue, being the northeast corner. My understanding is that -here are no foundations there for machinery, nor machinery in that building. There may be foundations for work benches, where the men work at the meters, but of that I am not sure. I am inclined to think not. If there are any I am inclined to think that they were not included in any valuation by Mayer or Rowland.

Q. I call your attention to the description, being the station repair shop (pp. 1370 and 1476), where in the schedule after the description appears the same words "foundations for machinery" and ask you if you are aware of any foundations or machinery upon foundations in that shop?

A. I believe that there are foundations in that building for machinery, both foundations and machinery.

6449 Q. Now, will you s-ate what that machinery is?

A. The machinery is such as would be required for repairing the stoves, cleaning them, and the foundations would be such as would be required to support the steam engines and gas engines that are used in that department, in supporting columns upon which there is shafting and belting and machinery and foundations of that character.

Q. Your information accords with that which Mr. Edgerton uses in his calculations. I was misled about "none" there, which is contrary to my notes, which state that the machinery foundations in this building were very small and are included in this figure of the building. I did not intend purposely to mislead you, but coming to the pre-payment meter shop (pp. 1370 and 1476), where in the description are stated the words "foundations for machinery," I ask if there are any foundations in that building or any machinery upon foundations?

A. My understanding is that there is no machinery there nor any foundations for machinery.

Q. Now, these buildings of which we have been speaking are those which are contiguous to each other and to which the repairs or alterations or whatever you do call them, about which we are speaking this morning, were made, were they not?

A. No, these buildings are not on the same block as the building to which reference was made in the testimony this morning.

Q. So that we may understand each other in this, this station shop to which I called your attention first is next, is it not, to the meter repair shop and office?

A. The building to which you drew my attention first was not a stove shop, but it was a store room for stoves and meters, and a meter proving shop.

6450 Q. It was spoken of by Mr. Mayer in that way, and that is the reason that I used the designation but whatever it is, the building to which I called your attention is contiguous to it, is it not?

A. No, it is not. One is on the corner of 22nd street, the first one on the southeast corner of 22nd street and First Avenue, and

the second building to which you referred is on the northeast corner of 21st street and First Avenue.

Q. And there is a building in between these two then?

A. There is a building in between, which is the stove repair shop to which you have referred.

Q. So those three buildings take up the entire block and are contiguous to each other?

A. They are; that is a fact, yes, sir.

Q. I call your attention to page 6315 of your testimony of yesterday, where you state as follows:

"The fact that the coke delivered from the 14th street station to the Water Gas Stations for use in the generators has to be carted some distance at the 14th street station operates to increase the cost at the 14th street station as compared with the Central Union station, where the water gas plant is adjacent to the coal gas plant."

And I ask to which station the cost of carting the coke is charged?

A. To the coal gas station.

Q. So that the cost of production of water gas has not charged against it the cost of hauling the coke from the point where it is made to the point where it is consumed?

A. No.

Q. This is not the course you follow when you sell coke to outside consumers, is it?

A. The amount paid for the coke by the water gas stations, as in the case of the amount paid by any other consumer, is supposed to cover the cartage of it.

6451 Q. But the amount charged against the water gas station does not include the cartage?

A. If they do not pay it separately it must be included there.

Q. Well, is it included?

A. In the price that the water gas stations pays for it.

Q. If the water gas station pays——

A. It is an item charged against the coal gas station, the bill for carting that coal is charged against that coal gas station, and they pay for the cartage of it.

Q. If the water gas station paid for that cartage the cost of production of water gas would be greater than it is stated?

A. If they paid the bill directly for the cartage in addition to paying for the coke the cost of the water gas would be augmented to that extent.

Q. And the cost of the production of the coal gas would be lessened by the same amount?

A. Would be diminished to that extent.

Q. When you sell coke to the outside consumers you said this morning that you did include the cost of cartage?

A. Yes.

Mr. MATHEWSON: At the rate which was specified.

The WITNESS: Yes.

Mr. MATHEWSON If it is delivered to the consumer, if he goes to the yard he gets it at a lower price, as appears in the testimony.

Q. And if the water gas station instead of taking the carts from

14th street sent their own carts to get it, the water gas station would have to pay for the cartage, would it not?

6452 A. Yes, and I have no doubt that they would get it at a lower figure.

Q. So that then the amount which the water gas station is charged for coke must be sufficient not only to pay for the coke as such, but for the cartage?

A. Well, I think that would be fair to presume, whatever the price might be. Of course, you will understand that in our cost of operating and manufacturing gas it don't make a penny's difference at what price we debit the water gas branch, or credit the coal gas branch with coke. It would be an arbitrary figure anyway, and the net result would be identically the same, whether we raise or lower that price, or whether we put the cartage against one station or the other.

Q. There is no doubt about that whatever, the result over the whole production would be the same?

A. Yes, sir.

Q. In this same connection I would call your attention to State's Exhibit ZZ, summary of operations for the calendar year ending December 31st, 1905, 44th street station, where I find a credit to the coal by certain residuals, including coal tar, in the amount of 857,616 gallons. That oil tar was obtained from the water gas station, was it not?

A. That is the water gas station that you are referring to now.

Q. From this water gas station?

A. Yes, sir.

Q. And is not credited to the oil used in that station, is it?

A. It is credited against the cost of gas at that station and operates to reduce it as shown there in the statement.

Q. It is, however, credited against the cost of coal, is it not?

A. Well, no, it is simply shown as an item in the sheet, it is not credited against the cost of coal.

6453 Q. I see here: "Coal used in generators, used under boilers, labor employed on coal, cartage employed on coal," making it a certain amount and getting a total of 6.27; then we have residuals, oil tar so much, and reduce the cost per thousand cubic feet made .7 of a cent, which being reduced from 6.27 gives a resultant of 5.57. It looks very much from that as though it were credited against the cost of coal, does it not?

A. It might look that way. If that were the case it would state that the net cost of coal was so much; it would be of course entirely misleading and erroneous; the two have nothing to do with each other.

Mr. MATHEWSON: I presume that you and your experts understand that you do not get oil tar from anthracite coal?

Mr. KIRBY: We presume it, but the account does not indicate it.

Mr. MATHEWSON: It does not indicate one way or the other, you must know it.

Q. Now, do I understand from what has just been said and your previous testimony in this case that you do not consider that crediting

oil tar in this way and charging coke cartage in this manner increases the cost of manufacture of the water gas, and diminishes the cost of manufacture of your coal gas?

A. Why, no, you cannot understand me as testifying to anything of that kind at all.

Q. Well, does it not diminish the cost of manufacture of your water gas to an amount which it would be, other conditions being equal, if these credits were not made to the coal gas part of your plants, or of your company?

A. I don't understand that to be the case. The water gas station would have to have fuel of one kind or another.

6454 Q. And having fuel, would be charged with the amount thereof?

A. And as so charged. The station cost is very properly credited with any residual product resulting from the process of manufacture, so that the cost as shown in our books and exhibits stands net.

Q. But the crediting under the heading of residuals of the oil tar to your coal augments the cost of the oil which is used in the manufacture of your water gas over and above that which it would be if such tar were credited to the oil direct?

A. No, it wouldn't have any effect on it at all. In fact, according to report in the first place, there was no credit to coal. At some point in the statement of operations the residual oil tar has got to be deducted and it is a matter of convenience that was deducted at that point, and has no significance whatever and any one familiar enough with the report to criticize it should know that cost of gas oil used at that station would be the gross amount less the amount of residual oil shown in the report. It is not credited anywhere, it is shown in our books on a separate item by itself, it is just simply a tabulation of items of cost and of credits that appear upon our books. There is no credit to coal account in our books of the residual tar that we obtained in the process of manufacture.

Q. And in preparing the statements you considered this would make a fair and proper statement of the cost of manufacture at your various stations?

A. Perfectly fair and proper, as they are items of expense, and every item of credit appears in that statement.

Q. And the distribution is considered by you to be a proper one?

A. Perfectly proper.

6455 Mr. MATHEWSON: Field's analysis, which you have quoted and brought in shows it in that very way, unless I am very much mistaken.

Mr. KIRBY: Yes, and I think you will find that the coal and the tar in the statements made in Field's analysis proceed from the coal.

Q. Yesterday you had occasion to state that you had made a careful examination of Field's analysis and that the amount obtained for ammoniacal liquor or sulphate of ammonia as set down therein was the gross amount and not the net amount. I ask if you will show me the statement or give me the information which you used in coming to your conclusion?

A. I shall have to correct you in quoting me. I did not say I

had made a careful examination of Field's analyis. In reply to a question by counsel I stated as my opinion that the amount reported in Field's analysis as the receipts by the company from the sales of ammonia and of sulphate of ammonia was the gross receipt and not the net receipt after deducting the cost of the conversions of the ammoniacal liquor into sulphate of ammonia.

By Mr. MATHEWSON:

Q. Return on capital invested in the plant?
A. Or return on capital invested in the plant.

By Mr. KIRBY:

Q. Having come to an opinion you must have had some information before you to reason upon. I would like to know what that information was. You did not get it, did you?

A. No, I have had occasion for some years to scrutinize the
6456 reports of the operations of all of the London companies and am more or less familiar with them, and I have never seen anything in any of their reports to indicate that they made a practice of reporting the receipts net.

Q. Well, I notice in regard to the price received for your coke you deduct handling, other labor, cartage, e-c.; that reduces the net receipts for coke, does it not?

A. Our report states all of those things in detail and we do not deal with any net figures in our books, reports or statements in which respect our method would, I think, correspond with that of the London companies, and the expense attending the sale of any residual product or the handling of it would be stated as an item of expense.

Q. And in regard to the tar, is the balance of your tar account the net receipts per ton or the gross receipts?

A. Per ton of what?

Q. Per ton of coal used?

A. It is the gross amount received.

Q. Now, if it be that this amount as set down at so much per ton, that is, the ammoniacal liquer and sulphate of ammonia, is so much per ton of coal or so much per thousand cubic feet sold, giving a gross amount, and it is sulphate instead of ammoniacal liquor, there must naturally be some account to which the cost of the sulphuric acid would be used in producing the sulphate of ammonia would be charged?

A. I have no doubt there is, but the report don't indicate it, nor does it indicate the labor. It is not given in sufficiently elaborate detail to furnish that information.

Q. So that you are not prepared to state where such charges have been made, or where in your opinion such charges would be made?

A. The charges I have no doubt are made in their regular expense accounts.

6457 Q. Can you point out to me in Field's Analysis such account as you consider it would be charged into?

A. I cannot tell what it would be charged into. I can perhaps in-

dicate what it probably is charged into. I should say that the wages paid would be charged under the item of salary and wages. That is the only item.

Q. If so charged then the total of labor set down under this item would not indicate the cost of making gas, would it?

A. Not exclusively, possibly.

Q. Is it your opinion that the tar per gallon as set down here is not the amount which the company receives for each gallon of tar sold?

A. Why, no, I think it is the amount that they receive for each gallon of tar sold.

Q. And do you not think that the amount under "Tar and its products per thousand cubic feet sold" is the amount which the company receives?

A. I have no doubt that it is.

Q. And such is also true of breeze per thousand cubic feet sold, is it not?

A. Well, without checking those figures, Mr. Kirby, I would not like to assume too much about them. They are probably all susceptible to checking as to their accuracy by dealing with the various factors that appear in the statement.

Q. Wouldn't you assume or wouldn't it be reasonable to your mind if it be a fact that the amount received per thousand cubic feet sold as set down in this table for coke breeze, ammoniacal liquor produced, the total receipt for residuals per thousand cubic feet, that the amounts for tar being net there your other amounts would be net?

A. I don't think there is any inference of that sort to draw. The amount for tar is both gross and net. I have no doubt they
6458 endeavor to sell it as it comes from their apparatus by the gallon, as the gross amount they receive for the tar.

Q. You have just stated you considered the amount which it received for that tar was the net amount?

A. Gross.

Q. No, just a few minutes ago, not in your present statement?

A. Well, I have not stated anything to the contrary to what I state now at any time in my testimony.

Q. Then do we understand you to say in reference to the tar and its product as the amount set down here received per gallon and per thousand cubic feet sold is the gross or net?

A. It is the gross.

Q. Wherein would it differ from the net?

A. I don't think in any respect nor I do not believe they make any use of their tar either that to sell it as tar.

Q. And if they sell ammoniacal liquor do they make any use of it other than to sell it as ammoniacal liquor?

A. The company I had opportunity to look over in that respect, so far as their accounts were concerned, did not sell any ammoniacal liquor.

Q. Then where do you get the information upon which you base your opinion that it is a gross amount if the company——

A. But they sell sulphate of ammonia, and I have no reason to think that it is not the gross amount.

Q. Have you any reason to think that it is or is not?

A. Yes, I have a reason for thinking that it is the gross amount.

Q. What is that reason?

A. The reason is that it figures out about the average wholesale price obtained here.

6459 Q. Now, I call your attention to the following items as the same appear in Field's Analysis for the year 1905, and as the same have reference to the sale of residuals by the London companies, taking the average of the Commercial and South Metropolitan companies, coke per thousand cubic feet sold per ton of coal, 4.99 pence; breeze, per thousand cubic feet sold, .32 pence; tar and its products, per thousand feet sold, 1.15; ammoniacal and sulphate of ammonia, per thousand feet sold, 2.09; total residuals, per thousand feet sold, 8.55; and ask you if it is not a fact that the total per thousand cubic feet sold or 8.55, is not the total of the amount which I have given for the four residuals spoken of, coke, breeze, tar and its products, ammoniacal liquor and sulphate of ammonia?

A. I think quite likely. I think that those figures are right, without adding them up.

Q. That being the total of those figures would not in any way change your opinion that the ammoniacal liquor and sulphate of ammonia, as set down for these three companies, the average of which is 2.09, as I have given you, is gross and not net?

A. No, it would not change my opinion any.

Q. And your opinion that it is gross is based upon the price to which you have certain information as to how much is obtained abroad for sulphate of ammonia?

A. Yes.

Q. The sulphuric acid or other material used in manufacture of sulphate of ammonia would be in your opinion therefore charged to certain accounts in Field's Analysis which you cannot identify?

A. Yes.

Q. Are you aware what the duty is upon sulphate of ammonia to this country?

A. I am not, no, sir.

6460 Q. Are you informed as to what the freight charges are from Great Britain to New York City?

A. I am not.

Q. Are you aware that the importation of ammonia sulphate from 1897 to 1904 has increased from 9,905 gross tons to 16,667 gross tons?

A. That is quite possible.

Q. I refer you to the United States tariff for 1897 and ask you if I quote correctly when I state that sulphate of ammonia carries a duty of .3 of a cent per pound.

Mr. MATHEWSON: That is a public statute.

The MASTER: Do not bother to take time on that. Put it in a brief, referring to it as a certain page of a certain statute and I will read it; it is a public act.

Q. You stated in your opinion it would be unwise for the Consolidated Gas Company to market its own ammoniacal liquor or turn it into sulphate of ammonia and market that.

Mr. MATHEWSON: No, he didn't say he thought it was unwise the company should market its own ammoniacal liquor. They do that already.

Mr. KIRBY: Through a middleman.

Mr. MATHEWSON: They sell to somebody who can use it. It is not used to drink.

Q. And have you ever made an estimate of what the cost of apparatus would be to change your ammoniacal liquor into sulphate of ammonia?

A. No, sir, I have not.

Q. Have you ever compared the cost of manufacture or the
6461 estimated cost of manufacture by you with the estimated cost of manufacture by the Barrett Company, to whom you sell your liquor?

A. No, I have made no estimates on the subject whatever.

Q. Have you ever made an estimate of the cost of extracting from your coal tar the percentage of what are commonly known as coal tar products, which are sold for medicinal and other purposes?

A. I have made some estimates of that nature.

Q. And have you ever compared those estimates with the cost of manufacture by the Barrett Company, to whom you sell your coal tar?

A. No, sir.

Q. Now, I refer you to page 6379 of your testimony of yesterday and to Mr. Edgerton's testimony on pages 5024, 5025, 5026, 5027 and 5028. At the bottom of page 6379, you have 775 cubic feet and directly thereunder 225 cubic feet so I take it that the mixture to which you have reference is of those proportions?

A. Yes, sir.

Q. Now, I refer you to Mr. Edgerton's testimony at pages 5024 and 5025 where he gives the cost of a mixture of 775 and 225. You will note at the top of page 5024 that Mr. Edgerton gives the yield per ton of coal of 11,648 cubic feet.

A. Yes, but that is the table that I used.

Q. Which table did you use?

A. I used the table wherein it is made to appear that a thousand cubic feet of coal gas of sixteen candle power can be produced for 7.55 cents.

The MASTER: At what page?

The WITNESS: On pages 5026 and 5027.

Q. And such yield was that used by Mr. Edgerton as you will see on page 5028 for a mixture where it was 500 cubic feet of sixteen candle power gas, and 500 cubic feet of 28 candle power gas.

A. Well, I do not see that that makes any difference.

6462 Q. So that in making your comparison you ignored altogether the different yield per ton which Mr. Edgerton used in

first using a 14 candle power coal gas and then using a 16 candle power gas?

A. I did not ignore anything that he used. The entire table as it appears on pages 5026 and 5027 is given in my report, in making a combination which I presume I was at liberty to do, I used one of his oil gas results without going into it in detail and got a combined cost. If I had used the other combination it would probably have resulted in a higher combined cost than my comparison shows.

Q. Be that as it may, you did use, in making your calculation, a yield from a ton of coke such as Mr. Edgerton used in getting his 16 candle power coal gas, did you not?

A. Yes. It happens that he claims to get a 16 candle power coal gas out of it. I don't know whether he does or not. We do not. I used that because that practically conforms to our own results.

Q. You really don't know any more about this than that information which you get from the books of the company, do you?

A. We consider that they give a great deal of information on the subject.

Q. Yes, but you have never manufactured any gas yourself?

A. No.

Q. You are not an engineer and you do not pretend to be?

A. No, and I do not pretend to be.

Q. Don't you think that in making up this comparison it would have been a little more in accord with Mr. Edgerton's figures if when you took the proportion of mixtures you had also taken the yield per ton of coal that he used for that mixture, rather than taking the yield per ton of coal that he used for another mixture?

A. I don't think it would make a particle of difference; it would be negligible.

6463 Mr. MATHEWSON: Mr. Carter states precisely in his table, 10,640, so there can be nothing misleading about it.

The WITNESS: I stated it because it was our own experience approximately in coal gas production.

Q. Then in making up this table on page 6379 you have used Mr. Edgerton's figures when they were higher than yours and your figures when they were higher than Mr. Edgerton's, and added the two together, or those figures together, to get your result?

A. No, I have used Mr. Edgerton's figures whether they were lower or higher than our own. They happen to be higher in some cases and he gave a reason for it. I accepted his 16 candles because he stated that he got that result with a certain quantity of lime and oxide. His cost is a little more than ours, and I accepted his figures for that reason.

Q. You certainly did not accept his yield, did you?

A. I have his yield figured out. In quantity I used his figures.

Q. You used his figures for a mixture of 500 and 500, where he used them for a mixture of 225 and 775?

A. I don't think it makes a particle of difference; the difference between the two costs was a fraction of a cent. One of his was 7.55 and the other was 7.12; there was a difference of less than half a cent between the two gases in cost.

Q. But a great difference in the details going to make the same up?

A. Well, I think they were of very little importance.

Q. Well, that is your opinion, certainly. We would not expect you to think otherwise, Mr. Carter. Are you not aware in regard to this yield, that by use of modern benches and reducing the
6464 quality of the coal gas to 14 candles that the yield could be increased as high as 5.2 cubic feet per pound, or to the amount which Mr. Edgerton gives on page 5024, 11,648 cubic feet per ton?

A. No, I don't know anything of the sort; I do not believe it, either. And the statement was made that those figures were obtained in our own practice at 14th Street and I have taken every pains and find out that that was not the case.

Q. But other than the results obtained from your practice as you have read them you are in no position to say whether or not that can be obtained?

A. It has never been obtained in our practice, and our practice was cited as the authority for that production.

Q. Not the only authority, if it were so cited. Now, in this statement on page 6379, you have cost of discharging labor and cartage 25.66 cents per ton. I presume you base that on the experience of the Consolidated, don't you?

A. Yes, sir.

Q. And that is based on the cost at the 14th street works where your coal has to be frequently handled, sometimes three times before it reaches the retorts, and at the 42nd street works, where your coal is hoisted and dumped into small carts and pushed by hand labor to your coal storage and again reloaded by hand labor and carted to the retorts where it is again handled into the retorts?

A. The fact is we have to deal with conditions and not theories.

Q. Do you propose to handle your coal in this way at Astoria?

A. I don't understand that Astoria enters into the proposition.

Q. It may or may not. I ask you, do you propose to handle your coal in this way at Astoria?

A. No, we do not.

6465 Mr. MATHEWSON: And the investment at Astoria is correspondingly greater.

Q. In regard to this yield, I call your attention to a statement in the Progressive Age for August 1, 1906, where it states that the working results now obtained by Dessau & Mariandorf justifying us in fixing the make of gas from standard gas coal with a vertical retort of our system at not less than 12,560 cubic feet per ton.

Mr. MATHEWSON: Well, really, this has got to be funny, Mr. Master. Here is a German concern with German coal, and a so-called vertical retort, and our process is not mentioned in the advertisements; it is perfectly ridiculous.

Mr. KIRBY: It is very funny when Mr. Carter holds himself up to criticize our figures.

Mr. MATHEWSON: These men are advertisers and produce an ad-

vertisement of that character from Germany. It is ridiculous. Vertical retorts were an experiment and are not accepted yet.

The MASTER: Gentlemen, if you will, forbear this discussion and continue with this cross-examination.

Q. In the item of gasmaking, labor and purifying 79.95 cents per ton, which you give as 7.42 cents per thousand cubic feet, I ask you if you are not informed that this service is now being done with modern apparatus and appliances at as low a cost as three cents per thousand?

A. I am not aware of it being done at as low a figure as that, and if it is done at any lower figure, I am not aware to what extent
6466 that apparent economy is offset by greater cost of repairs and of fixed charges on the more expensive apparatus.

Q. Now coming to repairs, I asked if even Mr. Edgerton's figure, 3.50 cents, is not lower than that which you charge yourself?

A. It certainly is, yes, sir, and it is lower than we are ever likely to realize with very modern up to date apparatus.

Q. Now is this item of repairs which you have set down at 4.20 and which Mr. Edgerton sets down as 3.50 the same item as set down in repairs in State's Exhibit ZZ, summary of operation for the calendar year ending December 31st, 1905, 14th street, repairs, including labor and material, cost per thousand cubic feet made, 3.85, cost per thousand cubic feet sold 3.95, and in the corresponding items for 42nd street, cost per thousand cubic feet made, 2.53; cost per thousand cubic feet sold, 2.59?

A. No, I do not think the period is the same.

Q. But it is for the same labor and materials?

A. Not for the same labor and materials; it is for the same items of expense, yes.

Q. In your labor of gas making and purifying did you use such salaries as were formerly paid or those which are now paid under the increase, about which Mr. Addicks has testified?

A. Those in actual practice during the period that we are covering by our statistics, Mr. Kirby, in 1905.

Q. Well, some of your statistics such as Complainant's Exhibit 368 run up to January 1st, 1907?

A. Do they? Does that?

Mr. MATHEWSON: No.

The WITNESS: I am not aware of it. It is a misprint if it does. No evidence of it there. The calendar year 1905.

6467 Q. I read that as 1906. I beg your pardon.

Mr. MATHEWSON: You will observe that the first six months as compared with the last six months show the difference.

Q. Can you tell me what the labor items were which went into that calculation of 7.42?

A. What they were in various items of retort house labor.

Q. Yes, gas making and purifying?

A. Yes, sir, I think I can give you that in some detail. Retort house labor 6.61; boiler house .45 cents; purifying house .32 cents.

There is a difference of .04 of a cent which probably arises in the decimal in converting this into tons and back again into cents per thousand.

Q. Do you base your estimate upon any rate of wage?

A. Upon the actual wages paid at that station, Mr. Kirby.

Q. And can you tell me what they are? What labor goes into this gas making?

A. The rate of wages paid at 14th street station is in the testimony somewhere, now I feel very sure. They were brought out before the Gas Commission.

Q. Well, the testimony of the Gas Commission is not altogether before this tribunal?

A. I have not the rates altogether in mind at the moment.

Q. Did you make this estimate up from the rate of wage?

A. No, from the actual expenditures.

Q. You simply took the expenditures for a certain number of cubic feet of gas and divided it by the number of feet made?

A. That is the case.

Q. So that you are not prepared to state to us just what labor was used and how much that labor was paid?

A. I can very easily get you the rate of wages paid at that station during that period.

Q. But you have not the information at hand?

A. No, I have not.

6468 Q. But if that is stated in the testimony before the Gas Commission there has been no change in your calculations?

A. None whatever.

Mr. MATHEWSON: You mean that you used the rate of wages which prevailed at the time of the testimony taken before the Gas Commission, or don't you remember?

A. No, that prevailed in 1905.

Q. Now, we have here in this statement at page 6379 three items of expense, expense, distribution, distributing expense, amounting in your total to 2.2 cents or over $200,000 per annum, based upon Mr. Edgerton's estimate of over three-quarters coal gas. Is it not true that these three charges are devoted almost exclusively to distributing the gas from one station to another; in other words, for labor and in what you call your exhauster house, or such other labor as may be expended in distributing your gas as you do?

A. Well, part of it, one item of it covers the expense of distributing the gas about the plant and through the holders and through the mains, and the other has to do with the cost of storing that gas at distributing stations and such apparatus as is necessary to be used for that purpose at those points.

Q. And this comprehends the expense of sending or carrying the gas to these points?

A. Yes, sir, that is the case.

Q. And the amount of coke which you use under your retorts in the statement is 32 per cent. of the total coke made. Is not this estimate nearly double that which is used in good practice and about 33 per cent. more than your company uses at its 42nd street works?

A. It may be more than is used at 42nd street, which
6469 would not be significant at all, because at the 42nd street works they have certain drip oil available there as the result of manufacturing oil gas by the retort process, which they are able to use as fuel under their retorts in lieu of coke, so that their apparent yield per ton may be better than at 14th street, where they make no oil gas and have no such residual drip oil to use as fuel.

Q. Is it not a fact that at 42nd street the drip oil is used under the oil gas retorts?

A. Under both.

Q. And you are not prepared to state whether or not, exclusive of the oil used, the coke at 42nd street would be less than 32 per cent. of the total yield?

A. I do not believe that it would, eliminating the drip oil fuel which they have at that station and are able to use under their retorts.

Q. You have never made any computations as to that?

A. No, I have not.

Q. You get a final cost here of 36.22 cents computed upon your figures; is it not a fact that this is about 8 cents greater than the cost to the Central Union?

Mr. MATHEWSON: The Central Union does not produce any such gas as that.

Q. For the 22 candle power gas that the Central Union produces?

A. Pardon me, I did not catch that question. I was looking for the 36 cents.

Q. My question is whether or not this 36.22 cents, which you set down here as the cost per thousand cubic feet of the mixed gas, which gas we assume, or you assume and which we state, has a candle power of 22 or over, I think it is 23 and something—is not about 8 cents higher than the gas produced at the Central Union works?

6470 A. No, it is not half that much higher. I don't think that under the new candle power law that the Central Union Company is doing such a great deal better than we, perhaps three or four cents better on their mixed gas.

Q. Have you examined the amount of oil per thousand cubic feet which the Central Union uses, have you examined reports giving the amount of oil per thousand cubic feet of gas made?

A. Oh, yes, I have had occasion to do so.

Q. And compared with the results from the works of the Consolidated Company, don't you think that the amount of oil which they used per thousand cubic feet of gas made should be sufficient to give them a candle power equal to that produced at the works of the Consolidated Company?

A. Well, of course the quantity of oil they use in their mixed gas, Mr. Kirby, we cannot very well make any other comparison of any other kind, than between their mixed gas and our combined coal gas, and of course the quantity of oil used per thousand cubic feet of combined gas would vary so much accordingly as the percentage

of water gas and the percentage of coal gas is varied, that a comparison would not be very illuminating.

Q. And you have never made any such comparison?

A. I have.

Q. And how much illumination did it give you?

A. Not much.

Q. So that you are not prepared to state one way or the other on that proposition?

A. I made a table and put it in evidence yesterday which I think is quite illuminating. We took the cost of manufacturing gas for the year ending October 31, 1905, and of the gas at the Central Union station and compared it with the combined cost of coal
6471 and water gas made by the Consolidated, and eliminating the variation due to candle power, found a difference in the two costs of less than one cent.

Q. In that comparison did you take into consideration the relative efficiency of apparatus at the Central Union and at, say, your 21st street works?

A. No, we did not take into account either the advantage they have over—that is, the advantage in cost, as shown in a cost sheet over our coal gas stations, and the fact of their being equipped with more modern regenerative recuperative benches, and with more modern and up to date apparatus for handling coal and handling coke. We did not even take that into account, and even with that advantage there was, as I say, a difference of less than one cent between their cost and ours.

Q. But in making these comparisons you sought in all instances to ascertain such advantages as you thought the Central Union or the Standard, or the New Amsterdam, or the Mutual might have over the Consolidated?

A. When it comes to making an analytical comparison between the costs between two stations, naturally we have got to take into account local conditions. Any comparison other than that would be valueless.

Q. The influences which might make a showing by them more advantageous than a showing by the Consolidated Gas Company were studied by you in the comparisons stated yesterday in the comparisons between the Consolidated Gas Company's cost and the New Amsterdam, and the Mutual and Standard and Central Union?

A. Well, I don't know exactly what you are referring to in my testimony yesterday. I made a comparison between the 14th street coal gas and the Central Union coal gas and made another
6472 comparison between the combined coal and water gas of the Central Union Company and of the Consolidated Company, and then in reply to some inquiries from Mr. Mathewson I did state what the cost was of the Standard and Mutual companies, in connection with the comparison made by Mr. Edgerton between the Consolidated and the New Amsterdam companies.

Q. And in all of that you naturally sought to ascertain if there were not influences which to your mind might make the cost of production at these stations less than at the Consolidated stations?

A. In referring to the Standard cost I made no analysis of it whatever, or the Mutual. In comparing with the Central Union I did take into account the variations in the conditions at the two stations, 14th street and the Central Union, and in the comparison of the New Amsterdam gas I did take into account, and make note of, certain variations between the conditions there and at out water gas plants that seemed to me to have a bearing on the subject.

Q. You also stated in your testimony of yesterday that Mr. Edgerton had made an error in his estimate of your losses due to making gas from gas oil in retorts as practiced at 14th Street and 21st Street stations. Is it not a fact that your yield of gas per gallon of oil averages but 50 feet?

A. The yield per gallon of oil used at 21st *for* 14th Street station in 1905 by the Bench process was, as I stated, about 50 cubic feet per gallon.

Q. Is it not a fact that under this condition of yield that 36 per cent. would more nearly represent the loss of drip oil and carbon in the retorts than 33 per cent.?

A. I have no knowledge on the subject and I simply know
6473 the facts to which I testified, that there were no figures that Mr. Edgerton had opportunity of consulting or which the company has any record of confirming his statement of a production of 33 per cent. of oil tar by the Bench process of making oil gas.

Q. Are you aware what *p*ercentage of oil turned into gas 50 feet to the gallon would represent?

A. No, I am not. It would depend a good deal, I presume, upon the grade of gas, whatever that 50 feet might contain in the way of illuminants.

Q. And you are not prepared to state?

A. No, I am not prepared to go into that technically.

Q. In reference to this use of drip oil, is it not a fact that your accounts show particularly at the 21st Street station the use of nearly six times as many pounds of drip oil for heating the retorts to make a thousand feet of oil gas as in use of coke for making a thousand feet of coal gas at the 42d Street works?

A. I should have to confirm that statement before I could testify on it, Mr. Kirby.

Q. You are not prepared to state one way or the other?

A. No, I am not prepared to state at the moment.

Q. It is not a fact that at your 42d Street works you use the coke for firing the retorts but little over eighteen pounds per thousand cubic feet of gas made from coal?

A. I would not like to testify to that from memory.

Q. Yesterday you made a calculation in regard to the New Amsterdam Company whereby you augmented the cost of its gas *pro rata* to the deficiency in candle power compared with the Consolidated Company. Will you state how you made that calculation?

A. It was just simply shown by the comparison of the cost of oil at that time to the two companies, which would figure out, I think, about .57 of a cent for .40 of a candle power.

6474 Q. And what price of oil did you use in your calculation?

A. The price at which oil was used in enriching during that year.

Q. And what was that price?

A. The cost of the New Amsterdam oil was 4 cents, the average cost per gallon and at the Consolidated station 4.08 cents per gallon.

Q. And how much oil did you calculate as necessary to represent the difference in candle power?

A. The amount was not calculated at all. The average cost of the oil per thousand cubic feet used by the Consolidated Gas Company was 18.75 cents and the average cost to the New Amsterdam was 18.18, the difference being .57 of a cent as the cost of oil used, which in round figures would about explain or cover the difference in the candle power between 25.41 candles in the case of the Consolidated and 25 candles in the case of the New Amsterdam Company.

Q. Yes, but this does not take into consideration the difference in the cost of the oil?

A. Of .08 of a cent?

Q. Yes.

A. I think it would.

Q. Did you neglect that altogether?

A. Oh, no. As I have explained, the calculation was not made at all, it was assumed, and I will make a calculation now if you would like to have me.

Q. I don't care what you make now unless it is——

A. I am stating——

Q. I am getting at what you did make.

A. I am stating that the calculation was the average cost per thousand cubic feet of the gas oil used at both points and difference of .57 cents stated as the difference in the value of the candle power produced.

Q. Was this candle power for the water gas alone?

A. Yes.

6475 Q. This would indicate, of course, that the higher the candle power the higher the cost?

A. Yes, I think it would, using the same grade of oil and the same price of oil.

Q. Now, in reference to these candle powers and to the gas war, about which gas war you made reference yesterday, I ask you if it is not a fact that the average quality of the East River gas in 1900 was 28.03 candles, the Consolidated branch one, 24.97 candles; branch two, 23.47 candles; branch three, 26.08 candles; branch four, 24.68 candles; branch six, 24.18 candles; the Mutual, 22.15 candles; the Equitable, 27.83 candles; the Standard, 23.63 candles; the average to the Consolidated being 24.67; and I refer to the report of the Department of Public Lighting and Building for December, 1900, where a table appears on pages 76 and 77, from which I read the figures I just give to you.

Mr. MATHEWSON: Mr. Carter did not make reference to the candle power yesterday.

Mr. KIRBY: But he made reference to the gas war.

The WITNESS: I made no reference to any candle power yesterday. I find those figures reported there in that report.

Q. And it is your information, is it not, that these figures are uncorrected for temperature?

A. That is my information, yes, sir.

Q. Do you know anything about it except you see it in that book?

A. Nothing whatever about it, except what is recorded there.

By Mr. KIRBY:

Q. Now, you referred yesterday to the condition of
6476 these various plants. Have you visited the 14th street plant recently?

A. What reference did I make? I would like to know just what you are referring to.

Q. I can find it in the testimony if I search long enough, but it was in regard to their being in good condition, I think in regard to the 111th street plant you stated it was in excellent condition. I have not as a matter of fact gone through this testimony but I have my notes, which I think are fairly accurate in that regard.

Mr. MATHEWSON: He stated that the 111th street plant was in operation and that it was not all taken by the city.

Mr. KIRBY: Yes, and he said more than that, too.

Mr. MATHEWSON: Quite likely. At page 6303 he refers to the 111th street plant:

"No, it has never been abandoned. Besides being operated as a distributing station it is held in a reserve capacity, the manufacturing apparatus being in excellent condition, some of it never having been used."

That, I suppose, is what you refer to.

Mr. KIRBY: Yes, and I think he will find in another part of the testimony he made reference to the plant. If you will refer to page 6377 you will note in reference to the 14th street plant:

"Q. What have you to say to Mr. Edgerton's statement that the 14th street plant is a dilapidated old plant. A. Well, there has been nearly a million dollars expended on keeping that plant in repairs since 1884, and as I testified this morning, the capacity of the plant has been greatly increased, and the cost of manufacturing gas there has been greatly reduced, so in every respect the stand-
6477 ard of efficiency is maintained at the plant and the capacity considerably augmented."

Q. Now, I ask you when you visited the 14th street plant last?

A. I have visited it on and off a number of times in the last twenty years. I supposed it may be a year since I was at the plant.

Q. Did you take any special notice of the retort house walls?

A. Not specially, having no occasion to do so at the time. I think if they had been in a very dilapidated condition I should have taken notice of them.

Q. Did you notice whether the buildings were in a complete state of repair?

A. To all appearances they were.

Q. Did you notice whether the walls were in alignment or not?

Mr. MATHEWSON: The walls of the building or around the property?

Mr. KIRBY: Well, we will take them both.

A. I did not notice that they were not.

Q. Did you notice whether they were or not, did you pay any particular attention to it, did you look to see?

A. Only in the most casual way.

Q. You have also been to the 42nd street works I assume?

A. Yes, sir.

Q. Did you notice the state of the timber trestle work there?

A. The timber trestle work there is something valued at a very low figure, I think, by Mr. Mayer, and it is answering its purpose at the present time, and I do not think that that work is ever very attractive looking.

Q. Well, was it in good condition?

A. I believe it to be.

6478 Q. In a thorough state of preservation and repair?

A. It certainly is kept up and repaired; otherwise it could not be operated.

Q. At the 42nd street station did you notice the state of the coal shed which is valued at $59,000?

A. I noticed the condition of the coal shed.

Q. Well, what condition was it in?

A. Nothing about it that attracted my attention.

Q. Nothing in respect to any of these buildings that attracted your particular attention, was there?

A. Not at all, of a character which would answer the description given by some of the witnesses for the defendants.

Q. Well, that depends on what you call dilapidated, does it not?

A. Well, I presume that might be a flexible term.

Q. Taking 111th street station which you state has apparatus which is in excellent condition, what apparatus is there?

A. Benches, retorts—I am not particularly familiar with with the apparatus; I have not qualified, nor have I attempted to qualify as an engineer, but I am informed by the engineering department that the apparatus is in the condition I have described it.

Q. But you do not know of your own knowledge?

A. So far as the technical status of the apparatus is concerned I should have to depend upon the engineering department for information regarding it.

Q. Have you been at the station recently?

A. Within a year.

Q. Did you notice the condition of the retort house roof?

A. I had no particular occasion to do so, and saw nothing particularly the matter with it.

Q. Do you know whether that roof is such as would keep out the weather?

6479 A. I have every reason to believe that it would, I have no information to the contrary.

Q. Is there any roof there?
A. On the retort house at 111th street?
Q. Yes.
A. There was the last time I was there.
Q. Was the entire roof there?
A. It was, the last time I had occasion to visit the plant, all there.
Q. A year ago?
A. Yes, sir.
Q. And you don't know what condition it may be in to-day or a month ago?
A. It might have been struck by lightning or demolished or taken down since then for aught I know to the contrary.
Q. Then as a matter of fact you know very little about the condition of the 111th street plant of your own knowledge?
A. Well, I have every reason to believe it is in good condition.
Q. And you so believe because somebody told you so?
A. Because it is our practice to keep our plants in that condition.

Mr. MATHEWSON: And because the last time he saw it it seemed to be.
Mr. KIRBY: But he has not seen it except over a year ago.
The WITNESS: I have no reason to believe that it has undergone any radical change in its conditions since I was last there and I do not believe it has.

Q. What kind of apparatus is at 111th street station?
A. Well, I am trusting to memory and speaking from the standpoint of a layman entirely; it is a coal gas apparatus.
Q. Is there any purifying apparatus there?
A. My impression is that there is. I would not be sure of it.
6480 Q. And if that plant were started up to-day, do you consider that it could produce purifying gas and get it into such condition that it could be sent out from that plant to the consumer?
A. I have no idea that the plant could be started up to-day, nor any plant that has been out of commission for some time, started up within twenty-four hours.
Q. What should have to be done to that plant before it could be started up?
A. Whatever is lacking in the way of apparatus would have to be provided.
Q. So that it is not a complete manufacturing plant as it stands to-day?
A. I understand not complete.
Q. I suppose in reference to coke that you have no further information than that that has been given by Mr. Addicks and Mr. Doane, have you?
A. I do not believe that I have, except that I do not believe that we will be able to increase the production of it 200 per cent. and at the same time double the selling price of it. I don't know that either of them may have expressed that opinion, but it is mine.

By Mr. MATHEWSON:

Q. Is that the result of Mr. Edgerton's assumption?
A. As suggested by Mr. Edgerton in his hypothetical cost.

By Mr. KIRBY:

Q. We quite understand that you do not agree with Mr. Edgerton's conclusions. I do not think we need emphasize that in any way. I presume that this comparison that you have made with the New Amsterdam and Mutual, Standard and Central Union
6481 was upon information furnished to you by others, was it not?
A. The question is based upon facts as set forth in their statement of operations to which I have access.

By Mr. MATHEWSON:

Q. And the same reports to the Gas Commission which Mr. Edgerton used?
A. The same reports.

By Mr. KIRBY:

Q. And all your information has been taken from testimony which appeared before the Gas Commission?
A. Well, I think it has, I think all of it is in evidence.
Q. No information other than that which appears in the testimony before the Gas Commission has been used by you in making the comparison spoken of put in yesterday?
A. I would not say, I might have used some calendar year figures, I am not sure about it. In which case I do not think any calendar year figures were submitted to the Gas Commission.
Q. And if so, you got your information from these companies or officers thereof?
A. Yes.

By Mr. MATHEWSON:

Q. If you used calendar year or nominal year you stated it in each case?
A. Yes, it is always plainly stated.

By Mr. KIRBY:

Q. You have stated that Rowland in his inventory of 1884 did not include the foundations, that it was not his rule to do so.
6482 That in some buildings he might have. Now, I ask you how you have come to that conclusion, what knowledge have you of what Mr. Rowland's custom was?

Mr. MATHEWSON: Will you repeat that question?
(Question repeated.)
Mr. MATHEWSON: Foundations of apparatus in every case.
Mr. KIRBY: Foundations of apparatus I have reference to.
Mr. MATHEWSON: I meant in the cost of buildings, that was my question.

A. Answering your question as amended by Mr. Mathewson, I

will say, that what information I have on the subject is gathered from looking over his appraisals.

Q. The appraisals which are in evidence in this case?

A. Yes, sir.

Q. You have made some reference to screenings from coke, in which you said that 21 per cent. of the screenings were sold and five per cent. of the screenings were used. I would like to know where you got that information?

A. I stated that of the coke used at the water gas stations five per cent. was screenings, and of the coke sold, accepting your figures, 21 per cent. was screenings.

Q. Now, I ask where that information came from?

A. The information appears in Exhibit J, I think, State's Exhibit J in this case.

Mr. MATHEWSON: Are you sure about the number?

6483 The WITNESS: Yes, it is State's Exhibit J, page 414-A of the exhibits in this case.

Q. Do you know the method of charging your water gas apparatus with coke when such is used and how screenings are used when such is done?

A. Do I know the method of charging the apparatus?

Q. Yes.

A. Do you mean the physical charging of the apparatus?

Q. Yes.

A. No, I don't know much about that.

Q. Do you know whether or not it is customary to place screenings on the outside edges of the coke between the main body of the coke and the apparatus?

A. Oh, I think not. I think that nothing of that sort is done. In fact, I think there is scarcely any screenings used at all in the generators in the water gas plant.

Q. On page 6334 of your testimony of yesterday there was a certain criticism of Professor Bemis' statement and Mr. Mathewson questioned you, and he stated:

"What percentage of the high-grade oil was used? 16 per cent. of the high-grade oil. As a matter of fact, what proportion of oil was used? A. 25 per cent., slightly over."

I ask where you get your information that twenty-five per cent. was used and not sixteen?

A. From our books.

Q. And where does that appear, in any exhibit in evidence here?

A. I don't think that it would be shown by the evidence.

Q. I refer you to the matter of Schmitt Bros.' bill, of which you spoke yesterday, to the amount of the actual cost of which you added ten per cent. If I remember correctly you stated that was to cover certain other work which you had to do in addition to the

6484 actual putting in of the apparatus. Will you kindly tell me just what you did do there, and for what that ten per cent. charge was?

A. The time employed in going to the customers' premises and finding out what was required, making a drawing of it, taking the

matter up with Schmitt, arranging to have the work done, and the price to be paid for it, and inspecting the work when completed; those would be the main things.

Q. What was the work?

A. What was the character of the work they did?

Q. Yes.

A. I think in every instance the installation of Manhattan heaters or some gas heating appliances.

Q. A gas stove?

A. It is not a gas stove exactly, it is a heater that sets into the fireplace and requires some special piping and masonry work and that sort of thing.

Q. And did you do the piping and masonry work?

A. No, we did not do any of it.

Q. And what work did you actually do?

A. I have described it; we put the time in going to the customers' premises, probably explaining to him the work that it would be necessary to do in making such an installation and making a diagram of it for Schmitt's use, indicating how the work should be done and taking it up with Schmitt and arranging with him for the cost of it, and inspecting the completed work.

Q. And it is the custom of your company to charge its customers for such services as you have just made reference to?

A. In the case of this particular kind it is the custom.

Q. Wherein did this differ from others? You have done work for Schmitt before?

A. No, this work was not done for Schmitt, but Schmitt has done a good deal of work of that character where no addition was
6485 made to his bill whatever, where it was not necessary for us to do any specific work.

Q. Had you ever installed any apparatus, gas ranges, or heaters or what not in the place where this heater was put in before?

A. I don't know whether we had or not.

Q. This is what you consider an unusual case?

A. They were quite unusual. I do not think there were six cases that occurred in 1905.

Q. And the amount received appears to a credit to what account?

A. To the account to which the expense of whatever nature the company was put to, would be charged the distribution account.

Q. And what is the name of that account as it appears in Exhibit 94?

A. Distribution account. It would appear under the subdivision of distribution material, the credit.

Q. Yesterday you made some reference to Mr. Edgerton's testimony, giving the cubic feet of gas delivered in Chicago. Are you familiar with the amount of gas turned into Chicago prior to the years 1904 and 1905?

A. No, sir.

Q. Are you acquainted with the operation of sending gas into Chicago from the Indian natural gas fields? Do you know the maximum amount which has ever been sent in?

A. No, nothing in the testimony about it; the only thing in the testimony in regard to the Chicago output of gas is that it is about fifty-five million feet per day on the average, or the maximum is that which I could scarcely reconcile with the statement that 168,000,000 feet of natural gas were pumped daily into Chicago.

Q. The number of cubic feet which Mr. Edgerton intended to state, and I believe did state, was not 168,000,000 but 68,-
6486 000,000, and I so have it in my notes.

A. It appears twice in the answer. That is the reason propably why it seemed to me not to be a typographical error.

Mr. MATHEWSON: Even that would be sufficiently improbable, for our purposes.

The WITNESS: Quite. It would seem to me they were not making any gas there at all and were wasting 13,000,000 a day.

Q. And you have taken the output for a certain year, whereas Mr. Edgerton had reference to an entirely different period. This morning you spoke in reference to candle power of the gas furnished in Milwaukee, Grand Rapids and Detroit, and made a certain deduction of cost therefrom. Did you know or do you know the price of oil as used in Milwaukee, Grand Rapids, and Detroit?

A. No, sir.

Q. Did you base your reckoning upon the price of oil as used for the Consolidated Company?

A. No, sir.

Q. What did you base your calculations upon?

A. I based my calculation upon the assumption that the consumer is buying illumination. It is called gas and measured as such, but the consumer is buying illumination expressed in candle power, and if he pays 84 and a fraction cents for candle power of only 69% of the value of the candle power in New York he is paying at the rate of $1.23 for a corresponding candle power to that which is furnished in New York.

Q. How did you arrive at the conclusion that the relative value was 69%

A. By taking the average candle power delivered in New York as shown by city tests and taking the candle power furnished by
6487 Mr. McMillan, or at least as produced in the three cities where his companies operate, and allowing a drop of one candle between his stations at his district.

Q. Yes, and then what?

A. Applying the two factors of the candle power delivered at the district in New York and delivered at the district in Detroit, Milwaukee and Grand Rapids I got 69%.

Q. I still do not understand. You assume that the candle power as given by Mr. McMillan was a certain definite amount.

Mr. MATHEWSON: He stated it.

The WITNESS: 17.8, and reducing it one candle power, 16.8.

Q. Very good. We will say 16.8; and what price per thousand did you put on that gas?

A. 84 cents and a fraction. I can give it to you exactly.

Q. Averaging it for the three cities?

A. Averaging it for the three cities.
Q. Now we increased that candle power to how much?
A. 24 and a fraction, the candle power delivered in New York.
Q. That is the candle power delivered to the consumer?
A. Delivered to the consumer.
Q. And that gives you a difference of how much candle power?
A. The difference between 69% and 100%, figuring it in percentage.
Q. And did you figure that increased cost per candle at the same rate as the cost per candle for 17.8 candle?
A. The calculation was based upon the variation in the candle power and the actual price paid by the consumers of the McMillan Company for the gas which they received of 16.8 candles.
6488 Q. They paid 84.95 cents per thousand cubic feet of 16.8 candles?
A. That is the case.
Q. Assumed by you?
A. Exactly.
Q. Now, will you take a piece of paper and show me the figures that would produce the cost that you have stated?
A. You want to know the arithmetical proposition?
Q. I want to see just how you figure it out, step by step, figure by figure?
A. It is a very simple proposition indeed; 84.95 cents represents the price paid by the consumers of the McMillan Company for the gas furnished them. The value of the gas as an illuminant represents 69 per cent. of the value of the gas supplied to the consumers in the City of New York.
Q. That is the percentage 17.8 upon 24?
A. 16.8 upon 24; that is the case And by dividing 84.95 cents by .69 you get the equivalent cost of gas of the candle power delivered in New York.
Q. Of course you have no knowledge as to what kind of gas this is which Mr. McMillan's companies are selling?
A. No, other than the information conveyed in his testimony, Mr. Kirby.
Q. In reference to Mr. Doane's price of coke, what you really mean is that the purchaser does not pay the cost of deliverey of the coke?
A. It is included in the amount that he pays, Mr. Kirby, for coke.
Q. He does not pay it in addition to the price per ton or unit which he buys?
A. No, sir.
Q. I refer you to Complainant's Exhibit 368, candle power, the calendar year 1905, monthly averages, and ask where you obtained that information?
A. That information is obtained from two sources: Our own station record and the record of the tests made by the city which
6489 are kept in the Department of Water Supply, Gas and Electricity.
Q. Do you know whether or not these candle power tests were corrected for temperatures and pressures?

A. Prior to July, 1905, they were corrected for candle weight and consumption only; subsequently to July 1, 1905, they were corrected for candle weight consumption for temperatures and for pressure.

Q. What was the candle power standard at this time?

A. Are you asking——

Q. The candle power standard, the requirements of the statute?

A. What were the legal requirements?

Q. Yes.

A. My understanding is that prior to July 1st the requirements were 20 candles delivered on the district and subsequently to July 1st, 22 candles delivered on the district.

Q. And the average you gave in answer to Mr. Mathewson's question was for the entire twelve months including that period covered by the 20 candle power regulation?

A. That was the case.

Q. Yesterday you spoke of the competition of the electric current, of the lack of suburbs within which the Consolidated Company might operate and of other causes which you had in mind which tended to refute Mr. Marks' prediction as to the increasing sale of gas; you also spoke of the transient and shifting residents of the city and their effect upon payment of their gas bills and consequent loss to the company; also referred to an article in the New York *Times* of January 1st, 1907. Now I refer you to an article in the New York *Times* of January 28th, 1907, and will read it and ask if you can inform me whether or not the statements therein are true as they apply to the Consolidated Gas Company.

6490 Mr. MATHEWSON: Let us see what it is before you read it.

Mr. KIRBY: I think you have probably seen it (handing a newspaper clipping to Mr. Mathewson).

Mr. MATHEWSON: I do not think I have, if it is the New York *Times*. I think I shall object to the reading of that statement, Mr. Master. It seems to me it is utterly impertinent in any respect, a newspaper assumption, reports and conclusions, unfounded largely, I know.

Mr. KIRBY: Even so the witness can state it, as he has taken occasion to refer to newspaper clippings. He has taken occasion to state that the sales are not increasing.

The MASTER: What is the page where he spoke of newspaper clippings?

Mr. MATHEWSON: It depends somewhat on the purpose and point upon which it is offered. The question which the witness was dealing with was brought up by the defendant's assertion as to our bad debts and deposits, and he simply stated that there was great pressure to bear even to make us return part of our deposits that we had, and that a bill had been introduced in the Legislature for that purpose. That is entirely pertinent, but this newspaper article that you have here——

The MASTER: Unless it is directly applicable to something brought out yesterday I will exclude it. You may equally read in everything that has appeared in the newspa-*res* for six months about gas companies and ask him what his opinion is about all that.

Mr KIRBY: On page 6351 you will find a qu-stion by Mr.
6491 Mathewson:

"Q. Even so, isn't it a fact that bills were introduced in the Legislature to compel us to return our deposit? A. There have been such bills introduced and I notice in The New York *Times* of January 21, 1907, there is reported a bill introduced by Assemblyman Eagleton reducing the amount of deposit the company can charge to the amount of one month.

Mr. BURR: That is entirely improper."

The MASTER: Possibly it was. It was not objected to when the question was asked. This question is. I will exclude it.

Mr. KIRBY: Exception.

Q. Mr. Carter, is it or is it not a fact that your sales for the year ending December 31, 1905, have increased to fifteen billion feet of gas?

A. Our sales for the year 1905 are in evidence, Mr. Kirby.

Q. 1906, I beg your pardon.

Mr. MATHEWSON: Mr. Master, the testimony which it is now sought to introduce of subsequent periods of course would be met, if it were pertinent at this stage of the case, by evidence as to the increase in our plant for the same period and other things, and open up an entirely new field of additional capital and other points which you can see would be entirely pertinent in that connection. This is not cross-examination and it is certainly not pertinent at this stage of the case. I object to it on all those grounds.

Mr. KIRBY: Mr. Carter has stated that the sales of the Consolidated Gas Company were not increased in the way Mr. Marks' pointed out, and I should think it were certainly pertinent to show by
6492 what amount they had increased.

Mr. BURR: May I say here, as it appears on page 6296 of the record, Mr. Carter sets himself up as an expert to contradict and criticize the theory upon which Professor Marks arrived at the conclusion that as the gas is reduced in price it increases in consumption. Now, whether as a matter of fact in his own company there has been an increase in the sales of gas, in the consumption of gas, for the past year, is quite a pertinent question, it seems to me.

Mr. MATHEWSON: Well, if you want to ask him whether that is so, and the Master——

Mr. BURR: Mr. Carter says——

The MASTER: I have it before me, but I do not see how this question has anything to do with cross-examination as to that. I should doubt very much if it was legitimate cross-examination even if it appeared here that there had been any such decrease in the price of gas during the last year to a fixed amount as there was during this period as to which Mr. Carter was testifying, but certainly the conditions existing during the last year when some people were paying one dollar and some people paying 80 cents would not afford any criterion to go by. I do not think that is proper cross-examination.

Mr. BURR: I think to disprove his own assertion we are entitled to show just what happened in his own company.

The MASTER: I do not see that it tends to disprove it. And even if it does I do not know that it is a proper time in the case to bring it in. It is not cross-examination, in my view, and that is
6493 what we are here for now.

Mr. MATHEWSON: I am merely seeking to curtail this within some limits.

Mr. KIRBY: Do I understand that the Master will not take judicial notice of the amount on deposit in the Federal court, representing the twenty cent deposit from the dollar collected by the Consolidated Gas Company?

The MASTER: You want to know if I know what it is? I will tell you, yes.

Mr. KIRBY: I ask if the Master will take judicial notice of such?

The MASTER: No, I could not take judicial notice of it, Mr. Kirby.

Mr. KIRBY: Then I ask——

The MASTER: But the Court will, undoubtedly. It may change between now and the time when this case comes before the Court. It will if you don't hurry up and proceed with your cross-examination.

Mr. KIRBY: I ask the witness if as a matter of fact there has not been deposited in the Federal Court since May 1st last, to January 1st, 1907, the sum of $1,904,417 representing the difference between one dollar per thousand feet of gas, the price charged by the company, and eighty cents, the price fixed by the law the constitutionality of which is now being tried.

Mr. MATHEWSON: Same objection.

The MASTER: I will exclude it.

Mr. KIRBY: Exception. I do not want to unnecessarily open up this field, Mr. Master, but I think under the circumstances the witness should be permitted to answer.

6494 The MASTER: Well, he may answer it. It has been ruled on. You can take his answer under the rule, if he knows.

The WITNESS: I presume you are asking if that is the amount deposited by the Consolidated Gas Company?

Q. Yes?

A. It is not.

Q. Can you state the amount which has been deposited by the Consolidated Gas Company.

Same objection, same ruling; exception.

A. I cannot state from memory the amount. It is very much less than that.

Q. It is less by the difference between the total amount deposited and the amounts deposited by companies other than the Consolidated Gas Company?

Same objection, same ruling; exception.

A. That is the case.

Q. Can you state the number of cubic feet sold by the Consolidated Gas Company during the year 1906?

Same objection, same ruling; exception.

A. I cannot.

Mr. KIRBY: That is all I have, Mr. Master.
The MASTER: All right, proceed, Mr. Burr.

Cross-examination by Mr. BURR:

6495 Q. Well, of course, you have made some inquiries to ascertain what the result has been, whether there has been a reduction in the price of gas, before you ventured to offer an opinion as you expressed it here on page 6296?

A. Whether there has been a reduction in the price of gas where, when and to whom?

Q. You say on page 6296:

"In other words, any advantage resulting from a substantial decrease in price of gas, we already have to the fullest extent, and any increase we might realize in population is likely to be entirely, if not more than, absorbed by the development of the electric business."

A. That is my opinion, yes, sir.

Q. I say, you have made some investigations to support that opinion?

A. Why, yes, sir. It is supported by the testimony I have just given with respect to the McMillan's companies where gas is selling at eighty-four cents and they do not begin to burn as much as they do in New York City.

Q. Are you acquainted with the fact that the People's Gas Company in Chicago reduced its rate here some little while ago?

Mr. MATHEWSON: That was gone into long ago.

Mr. BURR: Yes. Well, it is not denied that it reduced its rate, I want to ask him if he recalls or if he knows that that company has increased its dividends since that time?

A. No, I am not aware that it has. I believe it has restored them to the former figure, with respect to one dividend. I don't know that that means they are going to continue paying at the rate they formerly paid.

6496 By Mr. MATHEWSON:

Q. One quarterly dividend?
A. One quarterly dividend.

By Mr. BURR:

Q. I find in the New York *Times* of January 26th, this year, a statement that "The directors of the Peoples Gas Company declared yesterday a quarterly dividend of one and one-half per cent., increasing the annual rate from five to six per cent. This restores the company's dividends to the figures at which they stood for nine years prior to February last year, when the rate was reduced one per cent. to five per cent. for the reason, as was explained at the time of the reduction, that the directors felt that prudence required this step in view of the reduction in the price of gas. It is reported in Wall Street"——

Mr. MATHEWSON: It seems to me enough of that newspaper article

has been read. When we get to what is reported in Wall Street we ought to stop.

The MASTER: I think so, Mr. Burr.

Q. Have you any information on that subject?

A. None. I should not assume from that article that the rate of annual dividend has been restored at all. I should expect that they might possibly not pay the same dividend the next quarter.

Q. But you have no information which would lead you to disbelieve this statement as it appears here in the public press?

6497 A. I believe that they paid at the rate of six per cent. for this quarterly dividend, yes. That I can believe from that article.

Q. Now, you are not a gas engineer, I think you stated?

A. Oh, I have said that several times, I think.

Q. You never built a gas works?

A. No, sir.

Q. You never operated a gas works?

A. No, sir.

Q. You have no idea of assuming to pose here as an expert upon any branch of the gas business outside of the financial department?

A. That is the case.

Q. Now, you have criticised the report of Messrs. Marwick & Mitchell, Mr. Carter, in some respects. You said that according to their report the amount of gas on hand January 1, 1905, is incorrect.

A. Yes, sir.

Q. You were asked by Mr. Mathewson (page 6336), referring to Mr. Hall and his report, "Is the amount which he states on hand in the holders January 1, 1905, 26,552,000 cubic feet correct? A. No, sir, it is not correct." Is there any such figure as that in Mr. Hall's report or Marwick, Mitchell & Company's report?

A. Yes, sir. On page 1433 of the record of exhibits appears the statement that the gas in the holder on January 1, 1905, amounted to 26,552,000. The record on page 6336 of the testimony has three ciphers too many. It is a stenographic error. The figures are Mr. Hall's, and they are incorrect, and they are your figures so far as the testimony is concerned, Mr. Mathewson.

Mr. MATHEWSON: I repudiate the last three ciphers on page 6336. They are not mine, but the stenographer's.

6498 Q. The figures should be 26,552,000?

A. Yes, sir.

Q. That is the way it appears in the accountant's report?

A. Yes, and I understood Mr. Mathewson, and I think Mr. Mathewson said 26,552,000, and I said "No, sir it is not correct." And I reiterate that 26,552,000 is not correct.

Q. That is what I want to get at? What is the correct figure?

A. The correct figure? The correct amount was 27,880,000 cubic feet of gas in the holders January 1, 1905.

Q. You say you had certain gas on hand at the 18th street station. Now, why didn't you inform Mr. Hall as to that?

TORN PAGE

Mr. MATHEWSON: We didn't know what he was getting up; he didn't ask for any figures at the 18th street station. He could have had the books.

A. I didn't know Mr. Hall was using gas on hand at all. I understood he was checking up Exhibit 94. There was no statement appearing in Exhibit 94 of gas on hand and I had no means of knowing what he was doing independently of checking Exhibit 94. Had he asked for a statement of the gas on hand I should certainly have seen he got every figure we had on the subject.

Q. Didn't Mr. Hall ask you for the station records?

A. He asked for the manufacturing records so as to check Exhibit 94, and he had and was enabled to check the exhibit in its entirety.

Q. Didn't you give him the station record for 14th street, 21st street, 44th street, 99th street?

A. I did. They are all manufacturing stations and were used by him in confirming our statements in Exhibit 94 of the em-
6499 ployment of material entering into the manufacture of gas.

Q. You didn't give him 18th street?

A. 18th street is not a manufacturing station and we did not give it to him because there were no manufacturing figures contained in it.

Q. Assuming you are correct in stating that the quantity on hand on January 1, 1905, would be more than that shown by the accountants, it would have had the effect of increasing the amount of leakage, would it not?

A. No, it would not, assuming that a corresponding quantity was on hand at the end of the year of which Mr. Hall did not take cognizance.

Q. With a greater output of gas there is a greater percentage of leakage, is there not?

A. We are not dealing with output in your question. We are dealing with quantity on hand, which has no effect on the output unless diminished as a result of a month's or a year's transactions.

—. Well, this error would not in any way affect the computation of gas per thousand feet, would it?

A. Assuming he used the sales as recorded in your statements where he used the sales less the lamp sales reaching an arbitrary factor, I don't know that it would have affected; where he made any addition to his cost on account of unaccounted-for leakage therein he would be in error.

Q. The extra gas on hand January 1, 1905, added to the leakage at the close of the year would not increase it to any great extent, would it?

A. No, it would not result in any material change in his figures, Mr. Burr.

Q. Assuming that your 18th Street station holders on January 1, 1905, were full and their capacity was I believe not more at any time than 5,500,000 cubic feet, what difference in cents per
6500 thousand cubic feet according to Mr. Hall's method of computation would it make?

A. I don't know. In the first place the assumption that the holders were full would scarcely go because these records are taken at 7 A. M., after most of the gas in the holders has been taken out, I think, so it would not be the maximum capacity of the holder that would be recorded as on hand at that time.

Q. Assuming it be just as I said, it would be .01 cents per thousand, would it not?

A. Well, I am willing to assume that, Mr. Burr.

Q. Now, as a matter of fact you had only about one million cubic feet on hand at 18th Street, had you not?

A. Exactly 1,328,000 on hand at 18th Street on the first of January, 1905.

Q. On that basis the error in computation could be neglected and not affect the ultimate result?

A. I presume any one could neglect it who chose to do so.

Q. I mean to say it would not affect the ultimate result?

A. Not substantially.

Q. You said yesterday you had approximately the same stock on hand at 18th Street at the close of 1905 as you had at the beginning of the year——

A. I don't remember saying so. I would like to have it pointed out.

Mr. MATHEWSON: I asked you no such question.

The WITNESS: I made no such statement.

Q. All right, I will refer you to the page later. You said in reference to Mr. Hall's evidence as recorded on page 4477—you referred to that testimony and quoted his as stating that your sales for five months, June to October, exceeded your manufacture and purchases by 421,516,256 cubic feet; do you recall that?

A. Yes, sir.

6501 Q. It did not occur to you when checking Mr. Hall's figures that he simply made an error in recording his figures shown in Exhibit B?

A. I knew he had made an error. I so stated that he had made an error.

Q. Didn't you find that that error was in the question proposed to him by Mr. Mathewson?

A. No, sir. It was not proposed to him by Mr. Mathewson. It was proposed to him by you.

Q. Was it?

A. Yes, sir.

Mr. BURR: That accounts for it.

Q. Well, it was quite apparent that the slip had been made by the witness or by counsel.

A. Why, very apparent, I think.

Q. Again referring to Exhibit B, is it not true that the only actual stocks entered were those of January 1, 1905, and December 31, 1905, the other stocks or those entered as such being only balancing figures.

A. They are certainly not quantities on hand, and I so testified.

Q. So that it would appear, would it not, July 31, 1905, you had over-delivered gas beyond your make, amounting to 197,808,540 cubic feet, plus the unmetered gas at the same date and what was metered in gas?

A. I don't know. I would not like to testify to anything from those figures. They are not the kind of figures that are ever made up in any gas statement and I prefer not to draw any conclusions from them at all.

Q. You stated yesterday in regard to advertising expenses, it was obvious to you that Marwick, Mitchell & Company had treated $15,528.57 as a deduction twice?

A. Yes, sir.

Q. Were you able to trace the individual items making up
6502 the several deductions made by the accountants?

A. Only with respect to that item. With respect to that item I did, and read it into the testimony.

Q. Have you got the figures there?

The MASTER: Referring now to page 6342?

Mr. BURR: Yes, sir.

A. The individual items are given on pages 1462 and 1463 of the exhibit book.

Q. I will ask this question, the item on page 1432, "Legislative and Franchise Litigation" and so forth, .61 of a cent per thousand cubic feet is made up as follows, is it not:

Expense, general office..... .19
Advertising——

A. Where is .19 of a cent?

Q. Expenses, general office, .19.

A. Where is it to be found?

—. Page 1437 of exhibits.

A. There is such an item as .19 on the page.

Q. Advertising and legal, .48 of a cent; total, .67. You have in the divisor accounts .06, as per page 1432, total .61.

A. Well, I could not possibly confirm that statement. There were a number of items appearing on page 1437 as being rejected and not shown in the table on page 1432, of which amount I understand was this .19 of a cent.

Q. Now that I have called it to your attention does that explain what you consider an error on the part of the accountant?

A. No, it does not.

Q. Are you satisfied they were correct in the deductions made?

A. No, I am not.

Q. Well, can you state the account which you considered to be duplicated?

A. Yes, sir.

6503 Q. Please do so.

A. On pages 1462, 1463, appear in detail the items rejected by Marwick & Mitchell as follows:

Amount of ordinary legal expenses charged up exceeding amount of actual payments	$7,705.38
Actual payments excluded	15,528.57
Legal expense on account of legislative investigation	28,876.60
Franchise litigation	5,270.76
Advertising	6,020.34
Total	$63,401.65
If you add to that	15,528.57
A second time, being the second item, you get a total of	$78,930.22

And if you divide that amount by 13,012,384,000 cubic feet, the factor which they use in arriving at their rate per thousand, you get the cost per thousand of .61 which they used, and stated to be the amount which they rejected.

Q. What particular item was duplicated?

A. The item of $15,528.57.

Q. How do you know that?

A. Because the calculation demonstrates it very quickly to my way of thinking.

Q. Does not the calculation to which I have just called your attention explain it?

A. It does not explain anything. There is a large element in there that is not any rate per thousand of any kind. I am asked to take 19 cents, deduct 6 from it and add that to something else and reach the .61 of a cent, but I would not be satisfied to accept that as an explanation of that amount. I might indeed say that is not the only item on page 1437 that is not accounted for in this table
6504 on page 1432, but there are several other items which are also omitted from that page.

Q. Well, dropping that for the moment. In dealing with the street lamp expenses, the accountants eliminated both the sales and the amount of the expense, did they not?

A. They eliminated not the sales, because they had nothing to do with the sales, they eliminated the item of maintenance, but they did not eliminate the cost of the gas which was supplied to the lamps from the operating expenses, and therefore they could not properly eliminate the quantity of gas that was supplied to public lamps from their computations.

Q. What do you consider is the right method of treating that question?

A. As we treat it.

Q. That is by eliminating nothing?

A. Showing it as an expense as it is an expense, and showing in the income the total amount received from the city as long as the amount that we receive from the city is not divided by the contract between gas and maintenance.

Q. I understand that you testified heretofore that it was merely a matter of bookkeeping. You charge up against the cost of gas and

say that it is merely a bookkeeping regulation. Isn't that the explanation you have of it?

A. No, it seems to me an original method of dealing with it. I will explain that in all our computations of cost, of profit and so forth, we show that item on both sides, so that the net result is identically the same as though it were deducted from the expense and the expenses shown as something that they are not.

Q. To ascertain the cost to the private consumer that item should be eliminated from both sides, should it not?

A. Our business deals with private and public consumers
6505 and all kinds of consumers and it is a business that has to do with consumers as a unit and we cannot split it up into different kinds of business; it is all the gas business.

Q. Have you reduced the number of transients to whom you made reference, to a given percentage in the City of New York?

A. No, sir.

Q. Did you ever make an examination of a going concern on behalf of a buyer, Mr. Carter?

A. Well, what do you mean by that question, please?

Q. Well, one might take a different view of the valuation under those conditions, and I ask you whether you had any experience in placing a valuation upon a going concern for a person who was a proposed purchaser of that going concern?

A. Why, do you mean as a purchase of property, in the purchase of a plant?

Q. Yes, a going manufacturing plant?

A. No, I don't think I ever have. I don't recall an instance just now of just that character.

Q. If you were called upon so to do would you consider expenses similar to legislative expenses that have been referred to here, expenses in the ordinary course of a company's business?

A. I should expect if I were figuring on what profit I could make out of an enterprise that I contemplated investing in I should certainly consider those expenses as something I should have to reckon with in the future.

Q. Would you not treat them as expenses of an extraordinary nature and more properly chargeable to surplus account?

A. No, nothing is chargeable to surplus account, except through the operating expense account.

Q. Isn't that the recognized method of treating such expenditures?

A. It is absolutely not the recognized method.

6506 Q. And you base that statement upon what experience outside of the Consolidated Gas Company?

A. My observation of systems of accounting generally.

Q. Your attention has been drawn to companies having such items of expenses, legislative expense?

A. Yes, sir.

Q. Are those electric companies?

A. Such as electric light companies and gas companies, here and abroad.

Q. In reference to the reduction on account of services extended

or increased, did you identify the items eliminated with the job tickets, or did you identify the eliminated items with the job tickets?

A. What do you mean by identify?

Q. Compare them?

A. Do you mean, did I take all the items comprised in Marwick, Mitchell's statement, and compare them with the job tickets?

Q. Yes.

A. No, I did not. I compared enough of them, and had them compared by others sufficiently to establish in my mind what they were.

Q. I have special reference, Mr. Carter, to your statement as it appears upon page 6345 where the question was asked:

"Q. Now, another point to which I call your attention, Marwick, Mitchell & Company in this exhibit included in their items rejected the sum of $1,850.31, being, as they state, the cost of certain expenses and increases to services in the year 1905, alleging that they should have been charged to construction account. That amount, if I recall, is so small that it is said it could not be expressed in cents per thousand and was not expressed by them. A. It was not expressed by them. Q. But there is a principle there involved," etc.,

6507 And you went on to give an expression of your views upon that subject.

A. Yes, sir.

Q. Now, assuming your explanation to be the correct one, that when the city has removed the pavement you put in an extra joint, say from the pipe to the sidewalk, it is, you say, a charge to repairs.

A. Yes, sir.

Q. Then is not this an addition or new work?

A. No, it takes the place of an old joint or service. That is already an item in our capital account and we consider that to depreciate the old and capitalize the new would reach the same result as to charge the work of increasing the size and the material to repair account.

Q. No, but as a matter of fact you take nothing away, you simply add to or improve a service and call it repairs, is not that so?

A. No, it is not an addition, it is a substitution of perhaps a 1¼ inch for a ¾ inch pipe from the main to the curb line.

Mr. MATHEWSON: You displace small pipes plus pavement, and replace large pipes, which equals the two?

The WITNESS: That is the theory upon which we charge it to repairs.

Q. You charge it to expenses?

A. Expenses as a repair item.

Q. That is what you designate as a short cut?

A. It is a short cut, labor saving and brain saving, and leads to the same result in our judgment.

Q. Don't you find it leads to confusion?

A. Not at all, sir.

Q. Now, when you increased the various services mentioned by

you, you did not add anything to your construction account, did you?

6508 A. No, nor did we take anything from the construction account representing the old services.

Q. Well, should you not add the difference, between the service valued at five dollars and one at four dollars, that is a dollar, to construction account?

A. We do not think there is that difference. As has already been testified to, the service is laid in advance of new pavement at comparatively little expense. The probability is that the cost of laying the larger service under those conditions would amount to no more than the value at which the other service is carried on the books, plus the pavement.

Q. You admitted in your evidence yesterday that your books did not record what any particular joint cost, and that you could not charge a replacement unless a particular estimate was made for that charge, and that any such estimate would be an arbitrary one, didn't you?

A. I stated so, and it is a fact.

Q. It might be then, that your present method of treating these charges would lead you to charge operating expenses with what should really be construction?

A. I cannot concede that it leads to that result. I cannot believe that it does.

Q. Is it not the case, as a matter of fact, that the accountants were obliged to admit a large number of charges for small extensions of the service to the house, as your books and records were not kept in such a manner that they could be separated?

A. I am not aware of it.

Q. Your books as a matter of fact, are not kept for the purpose of supplying information easily and without considerable digging, are they?

A. (No answer.)

Q. Yes or no.

A. We think we can get a great deal of information from them without much trouble, Mr. Burr.

6509 Q. You are the only people who can. I think you have stated, Mr. Carter, that in your opinion the repairs and renewals and depreciation on your plant during the year 1905 were ample.

A. No, sir, I have not stated so; I have not made any statement of that kind.

Mr. Burr: I will withdraw that question.

Mr. Mathewson: Well, he has answered it.

Mr. Burr: Then let it stand.

Q. From the vouchers of Schmitt Bros, could you say definitely that no profit was included in the ten per cent. added when they were billed to consumers?

A. I can say specifically that there was no profit included in it.

Q. Was this not an arbitrary figure, its exact composition being unknown?

A. It was extremely conservative and probably did not cover all

the expense that we were put to. It is not our policy to charge anything in the shape of a profit on transactions of that kind, and most of Schmitt's bills, as Mr. Hall had occasion to observe, bore no addition of that kind, and we would not have been living up to our policy if we had charged anything in that ten per cent. over and above the expense we were put to.

Q. Can you make up what expenses were embraced in that ten per cent.?

A. Itemize them?

Q. Yes.

A. I have not done so. I think it might be done.

Q. Well, you can have it in the morning, can you?

A. Yes, I think so. I should not say in the morning because there will not be anybody in the office to-night, and it will depend upon what time we will meet in the morning. I can make an effort to do so.

6510 Q. If the Consolidated Gas Company invested the money received on consumers' deposits, would it not practically reimburse itself for the interest paid?

A. Well, that would depend a good deal upon what sort of an investment was made; it might reimburse itself for some of it.

Q. Do you not consider it reasonable to take into consideration the fact that you have the use of this money as working capital?

A. Well, I presume those matters are all subjects of argument and will be taken up in their turn, Mr. Burr. I would rather not anticipate the argument of counsel in a matter of that particular kind.

Q. Well, you have presented a magnificent brief here, you were making an argument all day yesterday. Of course, it has been testified many times here that the Consolidated has a controlling interest in these subsidiary companies with which it has these agreements for the manufacture of gas; that is a fact, is it not?

A. Yes, sir.

Q. Now, holding this controlling interest, or in fact any interest at all, do you not receive in dividends, which you treat as miscellaneous income, a proportion at least of the ten per cent. which you charge your company with?

A. Well, that would be a return on any investment we made in those companies.

Mr. MATHEWSON: The question is whether that is treated as miscellaneous income?

The WITNESS: Yes, it is so treated.

Q. In other words you pay them ten per cent. over and above the cost of the labor and material employed in the manufacture of the product?

6511 A. Assuming that it was a profit to them, or a return to them upon their capital invested in the business, and did not simply reimburse them for some other expenses, such as Marwick, Mitchell & Company suggested it might, insurance, depreciation and charges of that character——

Q. However that might be, they receive this ten per cent. and afterwards return a portion of it to you in dividends?

A. I cannot tell you whether they do.

Q. You have no knowledge on that subject?

Mr. MATHEWSON: Certainly the New Amsterdam does not.

A. Some of them I am sure do not.

Q. I think you have touched upon almost every subject that has been broached in this inquiry, and I am surprised that you are not familiar with the situation in that regard.

A. To trace that ten per cent. which we pay them to a dividend, and to say in case that——

Q. From those companies.

A. I think it would be a very difficult matter; I should scarce want to undertake to establish it.

Q. Well, assuming that to be the case, that would have the effect of really reducing the matter to being a charge against the operating expense and a credit to income on those investments.

A. That would be the case.

Q. You testified that certain mains were useless in 1903 and 1904.

Mr. MATHEWSON: No, temporarily disused and disconnected. They were not useless or they would have been marked abandoned at that time.

6512 Q. Well, when you made use of the expression disused did you mean abandoned?

A. No, I did not. By disused I meant disused.

Q. They were in a condition to be used at some future time?

A. That was the case, yes, sir.

Q. When you purchase material you charge it direct to the account to which you intend it to be used, don't you?

A. That depends upon the character of the material, Mr. Burr. We buy a great deal of material that is charged to stock account. All of our manufacturing material is carried in stock accounts and a great deal of our material for extending our distributing system and repairing it is carried in our stock account.

Q. Well, if subsequently you decide to use it for some other purpose, you make a cross entry in your books, don't you?

A. Where the material as purchased has been charged to some specific account, operating account and is used for some other purpose there is a cross entry made.

Q. That is the method with which you treat these things on your books, I am speaking of the books of the Consolidated Gas Company?

A. Yes.

Q. Do you not lay yourselves open to error in handling material in this manner?

A. No, I think we do not.

At 5:55 P. M. adjourned to Wednesday, January 30th, 1907, at 11:00 A. M.

Last Exhibits:

Complainant's, 369.
State's, OOO.
City's, 236.

6513 Circuit Court of the United States, Southern District of New York.

CONSOLIDATED GAS COMPANY OF NEW YORK, Complainant,

vs.

JULIUS M. MAYER, as Attorney General of the State of New York; WILLIAM TRAVERS JEROME, as District Attorney of New York County; FREDERICK E. GUNNISON, JOHN C. DAVIES, and LUCIAN L. SHEDDEN, Constituting the New York State Commission of Gas and Electricity, and THE CITY OF NEW YORK, Defendants.

Before Arthur H. Masten, Special Master.

NEW YORK, *January* 30, 1907—11 a. m.

Met pursuant to adjournment.
Present: The Master, Mr. Mathewson, Mr. Kirby, Mr. Burr.

6514 ROBERT A. CARTER resumes the stand and further testifies.

Cross-examination by Mr. BURR (continued):

Q. From the rents you receive from gas stoves you are expected to keep them in repair, are you not?
A. Why, yes, we do keep them in repair.
Q. Well, this being so, does the credit of stove rentals not appear to you to be reasonable as made by the accountants?
A. Why, I don't think any alteration of our statements as made reasonable.
Q. On the contrary you believe them all to be unreasonable?
A. I believe them all to be rather fruitless of results since we show both the expenses and the revenue in all our calculations.
Q. As a matter of fact the company does repairs and other work for consumers and other companies, does it not, and credits the operating expense with the same?
A. Consumers and other companies? I don't quite understand.
Q. Well, for consumers?
A. Why, we do a great deal for consumers, yes, sir.
Q. And other companies?
A. Oh, you are referring to work done in the street, probably?
Q. Yes, whatever work you do for consumers, or whatever work you do for other companies you credit to operating expenses, credit your operating expenses with the same?
A. Yes, sir.
Q. Why did you do so in one case and not in another?
A. Well, in one case the charge that we make is specifically for work that is done and the charge comprises the labor and the material employed and very properly as the cost of the labor and the material appears in our expenses, the charge made to individuals or

companies should appear directly in the expenses as an offset
6515 to it. It is in no sense revenue and in no sense income, the amount we receive from customers or companies for whom we do work.

Q. Will you refer to page 1437 of Exhibit 87 and tell me what deductions made on account of advertising and legal expenses—does it not appear to be there $63,401.65?

Mr. MATHEWSON: I do not think your question reads quite clearly. You mean what the reduction is on that account?

Mr. BURR: Yes.

A. I don't notice any deduction made there. I notice a column headed "amount" and under it an item of $63,401.65 or .48 of a cent per thousand cubic feet, which of course is not .48 of a cent per cubic foot on any volume of sales employed by either Marwick, Mitchell & Company or the Consolidated in any statements that they have ever made.

Q. There are two columns, one headed "increase" and the other is headed "decrease." This item of $63,401.65 appears under the column headed "increase"—I mean to say there is a column there headed "increase or decrease," this item of $63,401.65 appears under that column?

A. It appears under that column of increase or decrease.

The MASTER: I do not know about that. The increase or decrease covers two columns, does it not?

The WITNESS: Yes, sir, it does.

Q. Well, it gives the amount and then gives the cents per thousand cubic feet?

A. Yes, sir.

Q. Now, will you refer to pages 1461 and 1462, and I will ask you if you do not find the items of that amount to be as follows:
6516 Advertising, $6,020.34; Legislative Investigation expenses, $28,876.60——

A. Where are you reading?

Q. Pages 1461 and 1462.

A. What page? You are not reading both pages, I presume.

Q. I haven't the exhibit here; I will give it to you. On page 1462 of exhibits, under the column headed "rejected," you find advertising $6,020.24?

A. Yes, sir.

Q. On page 1463, at the top of the page, you find "Legislative Investigation Expenses," $28,876.60?

A. Yes, sir.

Q. On the same page you find "amount insufficiently provided for prior to January 1, 1905," $7,705.38, and you find on the same page, do you not, "amounts not properly applicable to cost of gas for 1905, as detailed" $15,528.57?

A. Yes, sir.

Q. Then you find on page 1462 in the column headed "Rejected amounts," franchise litigation, $5,270.76?

A. I have enumerated all those items yesterday.

Q. Making a total of $63,401.65?

A. Yes, sir.

Q Now, you see in these figures the sum of $15,528.57 but once, isn't that so?

A. Entered but once, but the total contained in the .61 cents per thousand that appears on page 1432——

Q. We will come to that. The item of $15,528.57 appears but once there?

A. It appears but once on pages 1462 and 1463, but twice in the calculation, by which the rate per thousand was arrived at.

Q. It appears but once in the sum total of $63,401.65; is that right?

A. That's right, yes, sir.

Q. Now, look at the bottom of page 1437, and do you not find that the decrease from the cost per thousand feet as shown by
6517 the accountant's statement as compared with your own statement is 22.31 cents?

A. I find a rate there of 22.31, which corresponds with other rates to which I have had occasion to refer as not being the rate per thousand on any volume of sales.

Q. Well, never mind. You find it there?

A. I find that figure there, yes, sir.

Q. Now, will you refer back to page 1432?

A. Yes, sir.

Q. And at the top there you will see a statement in these words: "The following is a summary of the amount excluded by us." And do you not find that the result of such summary is given in detail, and amounts to 22.31 cents?

A. I do not find it is given in detail. I find several items shown on page 1437 to which you have referred as being items excluded, including repairs to services, repairs to buildings, expense general office, adjustments and repairs to general apparatus aggregating .31 of a cent per thousand cubic feet, not shown at all in this statement on page 1432.

Q. Well, it appears there as 22.31 cents, does it not?

A. It does appear there as 22.31 cents.

Q. Well, that total of 22.31 agrees with the total deductions per thousand cubic feet as shown on page 1437, does it not?

A. It does.

Q. How is it possible? Can you understand how it would be possible that an amount should be deducted twice in the one statement and not in the other?

A. In this way: The amount is deducted twice in the item of legislative and franchise litigation .61 of a cent, and then the fact that such an error has been made disappears in the sundry adjustments which arbitrarily take care of all differences between the aggregate of the items enumerated, and the total of 22.31.

6518 Q. Does it so appear in dollars and cents there? If so, please point it out?

A. Does what appear in dollars and cents?

Q. The error that you spoke of that has been entered twice?

A. No; it is impossible to point out the error, because I say the error is taken care of in that item called "Sundry adjustments" in red ink in the total, and indicates a credit and takes care of any mistakes or omissions that may have occurred in making up that table.

Q. Can you point the error in dollars and cents so far as this item of $15,528.57 is concerned?

A. I did very clearly in my testimony yesterday point it out.

Mr. MATHEWSON: He showed that you have to include it twice to get your .61 of a cent.

The WITNESS: Yes, sir, it had to be included twice to get that rate per thousand, using their own factor of sales.

By Mr. MATHEWSON:

Q. If you did not include it twice it would not have given .61 of a cent, would it?

A. It would not, no, sir; nor would any other amount included give .61 of a cent.

By Mr. BURR:

Q. You see on page 1432 the last item in that column headed "amount per one thousand cubic feet" is an item entitled "sundry adjustments"?

A. Yes, sir; a credit item in the table.

Q. Do you know how that is arrived at?

A. No, sir, I do not, but I have indicated how a part of it is arrived at. It takes care of an error of .12 of a cent in the legislative and franchise litigation, among other things.

6519 Q. You say I understand that the accountants have pursued a different method of calculation from the method pursued by you in arriving at their cost per thousand cubic feet?

A. Yes, sir; in eliminating the lamp sales they pursued a different method than that pursued by us.

Q. It is not apparent from an examination of the figures to which I have called your attention on page 1432 that they are the same figures as shown on page 1437, grouped in a different manner and making allowance at the same time for the different methods of calculation?

A. I find 22.31 cents in both statements, which does not change the fact that there is an error in one of the items in statement on page 1432 which is adjusted into the item which handles apparently many things that I would not undertake to enumerate and I doubt very much if they could be intelligently enumerated.

Q. But you cannot point out the item $15,328.57 twice?

A. I have indicated that it was included twice in arriving at .61 of a cent per thousand.

Q. But you cannot point it out in so many dollars and cents?

A. Yes. You have read the amount a moment ago, you read it, what it amounts to, but it evidently has been included twice in making up his table.

The MASTER: Gentlemen, you seem to be wholly at variance on

this point, do you think it is worth while to spend any more time on it?

Mr. BURR: I won't spend any more time on it just at present.

Q. You stated yesterday that the accountants had deducted between $78,000 and $79,000 on account of legal expenses.
6520 Do you find those figures anywhere in the account of Messrs. Marwick & Mitchell?

A. On what page?

Q. Page 6503?

A. I indicated on that page how an error had been made by which it was made to appear that .61 of a cent per thousand cubic feet was the amount rejected by the accountants in their table on page 1432 of the exhibits.

Q. As a matter of fact you get that amount of $78,930.22 by adding to the amount to which I have previously made reference ($63,401.65), this item of $15,528.57 do you not?

A. Yes, sir, I do, making that addition for the purpose of demonstrating that it was included twice in the amount which represented the .61 of a cent per thousand cubic feet of gas sold, using their factor of sales.

Q. Now, you have not had any experience in keeping the accounts of any gas company outside of the city of New York, have you, Mr. Carter?

A. Oh, I have had occasion to see the accounts of a great many gas companies.

Q. But the method by which you seek to determine the cost per thousand cubic feet of gas is the same with regard to all the companies, the constituent companies of the Consolidated—the Consolidated Gas Company and its constituent companies, is it not?

A. Yes, sir.

Q. You have no more information on the subject of the original companies than Yalden had, have you, nor do you pretend to have any more information than he had?

A. With respect to what?

Q. With respect to anything and everything appertaining to those constituent companies?

A. Well, the testimony itself furnishes evidence that apparently Mr. Yalden did not have.

Q. In other words all that you desire to appear as saying
6521 here is taking the evidence that was produced in 1886 before that commission and arriving at a different conclusion from even the minority or majority of the Committee?

A. I have tried to arrive at a correct conclusion without considering whether it conflicted with the conclusion of the majority or minority committee or not.

Q. I want to call your attention to this one thing, you have arrived at a different conclusion from even the majority of the committee, as I understand you find that because there were certain things left out of their consideration the amount of capitalization should be even larger than it was at that time.

Mr. MATHEWSON: No. In the first place whether his conclusions disagree with the majority opinion or not appears from his conclusions and the majority opinion which is in evidence. As a matter of fact his conclusions do not agree with the majority opinion at all.

Mr. BURR: My understanding of his testimony was that he said that there had been left out of the consideration of Yalden and therefore the consideration of the committee large items of real estate, for instance from the Knickerbocker.

Mr. MATHEWSON: If you read the report of the majority you will find the majority say in substantial words that it is not necessary to go into the original cost, because the Act of 1884 authorizes the consolidation of the companies upon the then value of their properties and that that is the value with which they have dealt.

6522 By Mr. BURR:

Q. Don't you find from a careful reading of that report as you have given it that Mr. Yalden included real estate of the Knickerbocker in the assets of the Municipal Company?

A. I am very sure that he did not, absolutely certain about it; there is no question about it, he so testified himself.

Q. Do you find that he intended from any statement that he made, that he intended to embrace it in the assets of the Municipal?

A. He distinctly stated that he did not intend to do it and had not done so.

Q. Did he state any reason why he left it out?

A. He did.

Q. What was the reason?

A. Because the books of the company were not in evidence and he was unable to get a book value, and therefore could not include the value of the property.

By Mr. MATHEWSON:

Q. You mean the books of the Knickerbocker?

A. I mean the books of the Knickerbocker.

By Mr. BURR:

Q. Where did you find they took their values from?

A. They testified from their knowledge, presumably from the books of the company as they had access to them and had seen them.

Q. The books of the company were not in evidence—you have never seen them from that day to this, have you?

A. No, sir.

Q. And the witnesses were not testifying from the books of the company because the books of the company were not produced according to Yalden and therefore Yalden could not arrive at the figures of that real estate?

6523 A. A. He did not arrive at it. He knew there was real estate and knew it was transferred to the Consolidated Company, but in his summary of the value of property, as shown by

the books of the old company, he did not include any real estate of the Knickerbocker Company.

Q. You have no personal knowledge on the subject at all, have you, other than that derived from whatever knowledge you may have or information obtained from the perusal of this testimony in this exhibit, which was offered in evidence yesterday?

A. From the perusal of Yalden's testimony and of his own exhibit.

Q. Now, are not stock records usually kept in works, storerooms? Are they not more a protection against misappropriation of property than the system you have adopted and which the accountants have criticized in their report?

A. Stock records kept in works storerooms?

Q. Yes.

A. There are such records kept. The Board of Advisory Engineers, represented by Mr. Lacombe and Mr. Marks, reported on that, and in very complimentary terms.

Q. Do you mean to say there is a stock ledger kept?

A. No, not a stock ledger.

Q. You made a mistake I think the other day when you unintentionally said that Mr. Hall had visited your shops?

A. Mr. Hall did not visit our shops, no. If I said so I was mistaken. It was Mr. Lacombe and Mr. Marks.

Q. As I understand your testimony you claim that renewal and depreciation are practically the same thing, one and the same thing; isn't that your claim?

A. No.

Q. Wherein does the difference exist, according to your view?

A. I think that in the long run the probability is that all depreciation would ultimately materialize in the shape of renewals.

6524 Q. Now, say for example you bought a table for your office and at the close of the year it has depreciated by 20 per cent.; the next year you buy a desk. Are these not two separate and distinctive transactions, one a charge for depreciation on old furniture and one an investment of capital for new furniture?

A. That is the case. Ultimately we will buy a new table and our capital account will not bear the burden of two tables.

Q. Before you can say that your depreciation was expended in renewals it would be correct and proper to identify the depreciation with the items renewed, would it not?

A. Not necessarily.

Q. I understood you to say that Marwick, Mitchell & Company referred in their report to certain real estate amounting to $20,942,000?

A. No, sir.

Q. That was a mistake?

A. Will you kindly give me the page so I can se- what was said in that connection.

Q. It was the day before yesterday. As a matter of fact it does not appear in their report.

Mr. MATHEWSON: What the $20,942,000 represents we all per-

fectly understand, and if any such expression was used it must have been a slip of the tongue. That is the amount at which the property was carried on the books of five of the six original constituent companies—all the property.

Q. And it is quite clear to you from the report of Marwick, Mitchell & Company that the reason why the Knickerbocker real estate was not included was for the same reason as found by Mr. Yalden, that they did not have the books?

A. Not exactly. They did not have the books of the Metropolitan Company and still they included that real estate in their statement.

6525 Q. Where did they get the Metropolitan real estate from?

A. They allege in their report to have taken it from Mr. Yalden's figures in document 47.

Q. The Knickerbocker real estate did not appear in Yalden's report, did it?

A. No, sir.

Q. So, therefore, they could not find that either in Yalden's report or on the books of the company, which were missing?

A. No, sir.

Q. Did Mr. Hall during the progress of his examination of your books call your attention to the manner in which your books are kept, so far as omitted footing and calculation not extended, and so forth, were concerned?

A. No, sir.

Q. In the manufacturing records?

A. No, sir.

Q. Have you any doubt that there were a great many calculations to be made and footings to be made, and calculations extended by the accountant?

A. Oh, yes, very grave doubts about it.

Mr. BURR: There is a good deal of Mr. Carter's testimony that I do not regard as worth while to cross-examine with regard to, I regard it simply as more of an argument than the presentation of facts, and I will reserve my presentation of counter-propositions upon the same facts for a brief, rather than to consume the time of the court in conducting a lengthy cross-examination, which may just as well be presented in the form of a brief.

Q. You have testified regarding the candle power which you found in the various companies. Can you state the candle power of the gas at the water gas stations of the Consolidated Company, 21st Street, 44th Street, 99th Street, exceeded the candle power at the New Amsterdam Company station during the year ending

6526 October 31st by .41 of a candle power, in view of the fact that the exhibits put in by the city giving the tests of Dr. Love at the City Testing Station show a higher candle power at those stations of the New Amsterdam than the Consolidated, and we would ask what was the candle power that you found at the New Amsterdam during the year in question?

A. I don't think I have the candle power of the New Amsterdam

for that year. I think the figures were not for the nominal year ending October 31st, 1905, and the candle power was the station candle power and not the district candle power.

Q. Have you that data from which you compiled your conclusions, or made up your conclusions?

A. Not in detail, I have it by months if you desire.

Q. Have you got it?

A. No, I haven't got it. You would like the candle power of the New Amsterdam Company each month?

Q. Yes, the station candle power for each month.

Mr. MATHEWSON: From which you get your average?

The WITNESS: Yes, it is a very simple matter. I will produce that, with pleasure.

Q. Now, when the term long ton is used in reference to coke made at the Central Union how many pounds are to be understood?

A. The term long ton means 2,240 pounds.

Q. When the term ton is used with reference to coke made at the Central Union how many pounds are to be understood?

Mr. MATHEWSON: Do you mean when this witness uses it?

Mr. BURR: Yes.

6527 A. I don't think that I have had occasion to use it except in connection with Mr. Bemis' testimony, when I just simply used his statements without any reference to the number of pounds.

Q. What do you understand the ton referred to by Mr. Bemis to mean, so far as the number of pounds; how many pounds Mr. Bemis uses to his ton?

A. Yes. I understood him to testify he used 2,240 pounds.

Q. Do you understand that to be the same amount as used in the returns of the Central Union?

A. I understood you were asking about the Central Union.

Q. Yes.

A. In the returns of the Central Union?

Q. Yes.

A. Yes, I believe they use long tons, 2,240 pounds.

Q. And their returns to the Gas Commission?

A. Oh, to the Gas Commission? I don't know.

Q. How is it as to tons of coke sold?

A. My understanding is they are long tons of coke.

Mr. MATHEWSON: Are you referring to the returns to the Gas Commission or what? because we know nothing about their returns to the Gas Commission. They have not been presented by anybody that I know of. You are talking of a document we know nothing about and have no knowledge of as to the theory on which it is made up.

Mr. BURR: When I say return I mean, Mr. Mathewson, the evidence which you yourself referred to and brought into this case on behalf of the Central Union before the Gas Commission.

Mr. MATHEWSON: You mean the tesimony before the Gas Commission?

Mr. BURR: Yes.

6528 Q. Now, with that explanation can you state how many pounds are to be understood in the tons of coke?

A. I can only give my impression as gathered from Mr. Bemis' testimony that it was 2,240 pounds. I have not had an occasion in any calculation I have made or any testimony I have given to use the pounds or tons in any way, have not dealt with them at all, and consequently I have not had occasion to know what factor the Central Union Company uses.

Q. How many pounds per ton are to be understood in the Consolidated plant in the case of coke made?

A. 2,240.

Q. And that is true also in the case of coke sold by the Consolidated?

A. We do not sell any coke by the pound or any coke by the ton.

Q. It must be measured in some way?

A. It is measured in loads. We sell it by the load, an average of 1,500 pounds to the load and 2,000 pounds to the load of screenings, and we have no—we don't keep our records in pounds or tons, but in loads.

Q. You have stated Mr. Bemis should have given $3,676,000 instead of $4,676,000 when he was making comparisons between 1884 and 1895. That was a clerical error in favor of the company, was it not?

A. Quite likely it might have been in favor of the company, Mr. Burr. I would call attention to it nevertheless.

Q. You have stated Mr. Bemis deducted twice over from the assets of the company $1,985,874.37 received for land. Does this criticism apply to certain bulkheads condemned and not paid for, which he gave as $317,000 on page 364 of the testimony?

A. If they were included in the nineteen million dollars and have not yet been deducted from our book value of our property,
6529 why, of course, to that extent there would have been no duplication, but with respect to all the rest of the property which has been dealt with in our accounts and the credit shown in our accounts, and the net increase in the value of our property thereby diminished to that extent Mr. Bemis' calculation operated to deduct that twice over.

Q. Does that apply to the $875,916.37 of the land that was condemned but not yet paid for by the city?

A. Not to any land that has not been paid for, but to such land, or such property, as the property as sold or the proceeds of that have been credited to the company's property accounts.

Q. They have not been paid for, have they?

A. Which?

Q. The bulkheads?

A. The 18th Street property has not been paid for.

Q. Can you state how much was due from consumers November 11, 1884, as compared with the amount due from consumers October 31, or December 31, 1905?

A. I cannot, Mr. Burr, at the moment.

Q. You can get that for me very easily?

Mr. MATHEWSON: He can if it is material. I do not think it is.

Q. Mr. Addicks has testified as to increase in wages lately. Will you tell us what are the wages per day of stokers and common workers of the most numerous class of workers in your coal and water gas stations, and will you state what rate and hours per day you use of wages for the three or four most numerous classes of labor in coal and water gas manufacture, and please state whether these are the wages since the recent increase?

6530 Mr. MATHEWSON: I suggest this is not cross-examination of this witness; and, secondly, in checking up the exhibits in evidence the accountants went over or had full opportunity to go over the wage payments and all that.

Mr. BURR: He has arrived, as I understood him yesterday or the day before, at certain costs of labor, and instead of asking that long question, probably I might have obviated the matter by asking him to please give the details by which he arrived at the price of labor.

Mr. MATHEWSON: You referred a moment ago to Mr. Addick's testimony.

Mr. BURR: Mr. Addicks testified to the increase in wages, but Mr. Carter has, I understood, testified to a certain labor cost.

The MASTER: You may cross-examine him now as to what he did say about labor cost.

Mr. KIRBY: It is set down in comparison with Mr. Edgerton's figures, giving the amount of labor in that manufacture, of the cost as a total, and I think Mr. Burr is inquiring as to the details.

Mr. BURR: I would like to know the details.

Q. On page 6379, Mr. Carter, you gave labor cost, making and purifying 78.95 cents per ton, making 7.42 as against one thousand cubic feet of gas. What was the basis of that figure?

A. The actual cost of labor during the nominal year ending October 31, 1905, is shown by all our exhibits in the testimony.

Q. Did that take into consideration the increase in wages?

A. No, sir, it was the wages as they were paid during the nominal year ending October 31, 1905.

6531 By Mr. MATHEWSON:

Q. Nominal or calendar year 1905?

A. That was the nominal year.

By Mr. BURR:

Q. Can you give me the items of that labor, what rate?

A. No, sir, I cannot.

Q. Well, you must have had some paper from which you made up this conclusion or deduction regarding that item?

A. The statement is in the testimony wherein these items of labor are enumerated and have been checked by the accountants and found correct.

Q. I am calling special attention to this item of labor, as appears on page 6379, and which you have summarized as representing a cost of 78.95 cents per ton, making the cost against a thousand cubic

feet of gas of 7.42. I ask you if you would be good enough to let me have the details of that calculation?

A. The details of the calculation are the cost per thousand, as shown there, converted into a cost per ton by using the factor of the cubic feet of gas produced per ton of coal. That is all the calculation there is to it. It is our own actual cost of labor in coal gas manufactured reduced to a cost per ton which we have never showed in practice, as it is of no use to us, but shown there for the purpose of making a statement conforming to Mr. Edgerton's.

By the MASTER:

Q. Taken from Exhibit 94?

A. No, sir, because that is all our labor, and I am dealing with comparisons with 14th Street only. The 14th Street cost is shown in two exhibits for the calendar year—in Exhibit ZZ and for the nominal year. In that case I do not know whether it is in
6532 this testimony or not.

Mr. MATHEWSON: I think so.

Q. In arriving at that cost, what I want to get at is, what rate of wages and hours per day were used by you?

A. No rate of wages, no hours per day, but the actual cost per thousand cubic feet of labor at the 14th Street station, and of course, the rate or whatever was paid at that station during that time.

Q. That was the sole information you had in making up your conclusion as to cost per ton?

A. Exactly.

Q. On page 6374 you state that the cost of the Standard was 30 cents, or .62 lower than the Consolidated. This means that the cost of the Consolidated was 30.62 cents, does it not?

A. The Consolidated was 30.62, yes, sir.

Q. Will you point out any testimony or give now the data on which you base 30.62 cents for the Consolidated water gas, and 30 cents for the Standard?

A. The Consolidated I gave in great detail in my testimony, giving each station; the quantity produced and the cost in dollars, and the total, and the rate per thousand and showed what items had to be deducted in arriving at a figure comparable with the New Amsterdam Company, the figure deducted being a certain item of depreciation, and an item of experiments, neither of which items of expense appeared in the cost of the New Amsterdam Company. The result was 30.62 and it is all plainly spread out in my testimony.

Q. You observe, do you not, at page 26 of the Mutual exhibit that you have offered here that oil costs the Mutual 4.495
6533 cents per gallon, or 21.26 cents per thousand feet——

Mr. MATHEWSON: I don't know what you are referring to as having been offered in evidence.

Mr. BURR: Didn't you refer to the return of the Mutual? You have referred to the return of the Mutual in comparison with the Consolidated, have you not?

Mr. MATHEWSON: That is the cost at the station for the Mutual as compared with the cost at the station of the Consolidated.

Q. Now, I call Mr. Carter's attention to the testimony in that case, Exhibit 31, in the case of the Mutual, before the Gas Commission, and ask—you observe, do you not, on page 26 of the Mutual exhibit that oil costs the Mutual 4.495 cents per gallon, or 21.26 per thousand feet, while the cost for October 31, 1905, at 21st Street was 4.08 cents per gallon, or 18.84 cents per thousand at 44th Street, or 19.18 per thousand, and at 99th Street was 4.05 per gallon or 17.80 per thousand; in other words, the difference in the cost of oil extends over two cents per thousand feet of the excess cost of the Mutual.

Mr. MATHEWSON: If you want the witness to answer these questions, make those comparisons, I must ask that the record be produced so that he can make them. I cannot allow him to rely on his memory unless he is perfectly sure as to all these decimals.

Mr. KIRBY: He had a very good memory on his direct examination.

Mr. MATHEWSON: Oh, no, he had the data. He may have the data here by which he can make the comparison. If so I have no objection.

6534 A. It still leaves the Mutual gas costing more than the Consolidated gas even taking into account a variation of the cost of oil.

By Mr. MATHEWSON:

Q. Even assuming the variation is as counsel just stated?

A. Yes, it still leaves the Mutual cost higher than the Consolidated cost.

Q. Are you able to say from memory whether the assumed percentage is correct or not?

A. In this particular case?

Q. Yes.

A. No, sir, I am not.

By Mr. BURR:

Q. Well, you have got the exhibit before you, haven't you?

Mr. MATHEWSON: It is not the printed Mutual record that is before the witness, and he has not the other papers before him in any shape.

Q. As I understand, there was an exhibit offered before the Gas Commission, No. 144, giving the amount of gas manufactured by the Consolidated during the month, beginning the 1st of November, 1904, and ending the 31st of October, 1905. Do you recall such an exhibit? It has also been introduced in evidence in this case.

A. I think there possibly may have been such an exhibit. I would like to see it before testifying about it.

Mr. BURR: I have just sent for it. We do not appear to have it here.

Mr. MATHEWSON: Well, where is it in this case as an exhibit? I

don't know anything about it because I did not even represent the Mutual before the Gas Commission.

6535 Mr. BURR: I have no reference to the Mutual. I am speaking of the exhibit introduced by the Consolidated before the Gas Commission, which record has also been introduced in evidence in this case here.

Mr. MATHEWSON: Oh, that is another proposition.

Q. I show you a copy of it, Mr. Carter, and ask you to say whether that to the best of your knowledge, information and belief correctly shows the gas sales for those months that I had referred to between the 1st of November, 1904, and the 31st of October, 1905?

A. The gas sales by the Consolidated Company during the nominal year ending October 31st, 1905, are given in Exhibit 93 in this case, and I think as that has all been checked and confirmed in every way perhaps it would be better detail to introduce now, or for me to testify from than anything else.

Q. The amount as given on this exhibit, a total of 13,308,363,773?

A. Those figures sound very familiar to me. I should say they were the sales for the nominal year ending October 31st, 1905.

Q. You referred to Mr. Marks' statement as you claim as having been made by him that the Consolidated was going to operate in Queens County or in Kings County. Don't you find in that connection that he referred to the operation of the Astoria plant in Queens County or in Brooklyn, the undisputed testimony being that the Consolidated Company owns all the stock of the Astoria?

A. I don't recall Mr. Marks' testimony very well. If he made any reference, however, to any output of gas in Queens Borough or Kings County he was far away from the fact, Mr. Burr. If you are simply referring to the production of gas in the Borough

6536 of Queens for distribution in New York, why I do not think there is any criticism to be made of his testimony.

Q. But, Mr. Carter, you do not wish me to understand you as claiming that the Astoria Company cannot operate in Queens County and sell gas in Queens County?

Mr. MATHEWSON: Have you introduced any franchise or anything else here, Mr. Burr showing that the Astoria Company has franchises to operate in the Borough of Brooklyn and Queens? If so, they have escaped my notice. The Astoria is a manufacturing company, not a distributing company.

Mr. BURR: You are furnishing gas to the New Amsterdam and East River companies.

Mr. MATHEWSON: They are manufacturing gas and not furnishing it to consumers. They are not furnishing it to the New Amsterdam either. They are sending it to the Consolidated in New York through the tunnel, so far as they have begun to manufacture, as stated.

Mr. BURR: I do not think it is claimed seriously that the Astoria Light, Heat & Power Company cannot make and distribute gas in Queens County.

Mr. MATHEWSON: It is seriously contended, if you want the state-

ment, that so far as I know I don't know that they have any franchise to distribute gas in the Boroughs of Queens or Brooklyn.

The MASTER: Do not argue it further. The witness has answered it responsively, as far as I understood his answer.

6537 Q. The Astoria is delivering gas to the company, the Astoria Company, is it not?

A. Yes, sir.

Q. Mr. Addicks testified the other day you had not at the time he was testifying agreed upon the price which you were to pay to the Astoria Company for the gas being so delivered. Have you yet agreed upon the price?

A. No, sir.

Q. You criticised the amount of the land and structural cost obtained by Mr. Marks in his statement of valuation which he derived early in this inquiry from your incomplete data, amounting to $3,068,140.51. Will you be good enough to refer to Exhibit 87, page 1562, and do you not find the original cost of land to the six constituent companies or the consolidated companies to be $3,377,971.10 up to 1884?

A. No, sir, I don't find anything of the kind. I find a statement of the value at which a portion of the real estate, a large portion of the real estate was transferred to the company in 1884, and was carried on the books of the constituent companies, excepting the books of the Knickerbocker Company.

Q. Of course you know nothing of your own knowledge with respect to mains, Mr. Carter, and what information you have on that score I understand you take from Mr. Simpson, or from the men who have practical knowledge with regard to mains, whether they are diseased with pits, or whether they are disused, or whether they are abandoned?

A. Nothing of that character. The practical character, Mr. Burr, would come from Mr. Simpson to a very large degree, but with respect to the cost of labor and material employed in extending I should have probably more information than the department itself would have.

6538 Q. Well, Marwick, Mitchell & Company give the number of miles of mains according to the books of the company to be something like 804,594 on December 31, 1905; is that correct, according to your books?

A. That is correct, yes, sir. You are comparing, I presume, the other figures given as of October 31, 1905?

Q. Does that include everything but abandoned mains?

A. That includes everything but abandoned mains, yes, sir.

Mr. BURR: That is all I want to ask, Mr. Carter.

Mr. KIRBY: I have a few questions which I intended to ask yesterday, which I omitted yesterday by turning over two of my pages of notes instead of one. The first is on page 6375 and 6376 where Mr. Carter states in answer to a question:

"A. So far as experience goes, the calculations of that nature at Astoria in connection with the construction of the plant at the pres-

ent time amount to 11.662 per cent. of the amount expended," referring to engineering charges.

The WITNESS: It should not be "calculations," it should be expenditures, on page 6376.

Q. Will you kindly tell me what those expenditures were? And when made?

A. They are in the nature of salaries of engineers, draughtsmen, inspectors and engineering department generally, the cost of borings and soundings, the cost of temporary structures, the taxes and insurance, the cost of repairing temporary structures, and expense of that nature.

6539 Q. When you say engineers, to whom do you refer—engineers directly employed by the company?

A. Engineers directly or indirectly employed by the company.

Q. Do those engineers include any of the employees of the company who have or are providing other services than those having to do with Astoria?

Mr. MATHEWSON: Which company?

Mr. KIRBY: The Consolidated Company.

A. Well, if there are any individuals, any engineers whose services are divided between both companies, their time or their salaries are divided and so much of it as applies to the Astoria construction operation is charged to the Astoria Company and appears as one of the items of the expense of this character.

Q. Will you tell me when these expenditures commence?

A. I should say they commence as far back as 1900, Mr. Kirby.

Q. And your plans have now all been made and specifications drawn up, and all that remains to be seen in regard to Astoria is the completion of the units as laid out?

A. That is my understanding at the present time.

Q. So this 11.62 per cent. which has been paid out in the manner you have indicated would probably care for all such charges as might be attributable to Astoria, unless there should be some change of plan.

A. I would not like to commit myself to that proposition because the expenses of that character are still going on in connection with the completion of the plant there, and would be probably taken into account when the plant is finally completed as to the first unit.

6540 Q. In other words, there will be inspection of buildings and things of that kind?

A. Yes, sir. I don't think it will be very considerable in addition to this amount, I would not like to say how much or how little.

Q. Did the Consolidated Gas Company lay down the plans for the Astoria Company itself, or the Astoria company?

A. The Astoria Company.

Q. So when we speak of this amount as a charge for engineering I presume it is immaterial whether charged up against Astoria, or the Consolidated?

A. No, this is all charged up against the Astoria Company, although if the disbursements may have possibly been made by the

Consolidated Company it would be charged against the Astoria Company, but would not appear in any permanent record and expenses in the Consolidated station.

Q. That is the way I understood it, and the reason for my question. Now, the entire expenditure at Astoria is contemplated to be something about thirteen million dollars, is it not?

A. Yes, sir. I think when the first unit is completed it will approximate that sum, that is my recollection of the testimony as given by Mr. Bradley.

Q. So that this percentage would amount to over one and one-half million dollars, would it not, as applied to the estimated cost of the plant?

A. Not necessarily, because the entire cost of the plant would include the cost of the land, and the grading of it, which is not taken into account here.

By Mr. MATHEWSON:

Q. The tunnel?

A. The tunnel.

6541 By Mr. KIRBY:

Q. Between the grading of the land and the tunnel, have you not employed engineering skill and advice?

A. The tunnel remains to be constructed.

Q. You have made borings?

A. And that is included in that percentage figure which you have given?

A. Yes, although as an item of expense in the tunnel it is probable, so far as that preliminary work is concerned, completed; I presume so.

Q. So with your gradings and matters of that kind, while it has to do with the land as land nevertheless it is part of the system of the installation of the plant, and any engineering cost in plans, in draughting, which had to be done, I presume is included in this percentage?

A. No, this is the cost of engineering in the course of construction of the plant.

Q. And has nothing to do with the grading or the laying out?

A. No, sir, we do not consider that the labor of filling in real estate requires a great deal of engineering or any engineering expenses.

Q. Don't you make plans to get your grades and place the buildings properly?

A. Yes, I daresay there are several items of expense of that kind.

Q. And those would be included?

A. Yes.

Q. Now, I refer you to page 6411 in the next day's testimony, where you said in answer to a question by Mr. Mathewson, the answer being:

"A. The amount stated in the special franchise report to the State Board of Tax Commissioners to have been the value for purposes of

taxation for tangible property in the street was originally furnished to me by Mr. Simpson——

6542 Q. Well, the figures are the ones which were furnished by Mr. Simpson on his basis of material and labor in soft earth? A. That is the case."

I presume you have no more information on this point than Mr. Simpson, have you?

A. Oh, no, sir. Mr. Simpson has testified at considerable length in that connection, and I could not add anything to the testimony that he has given.

Q. Now, look at page 6495, where you speak of Mr. McMillan's companies, where you answered in regard to a question by some one—I don't know whom—

"Q. I say, you have made some investigations to support that opinion? A. Why, yes, sir. It is supported by the testimony I have just given with respect to the McMillan companies where gas is selling at eighty-four cents and they do not begin to burn as much as they do in New York City."

I ask if you know how much gas was burned by the consumers of the McMillan companies before and after the reduction in price made by those companies?

A. No, I only know what it was after it was made.

Q. I refer you to page 6421, with reference to the Mutual Company, where you state: "The actual investment of the Mutual Company, as shown by their statement, referred to by Yalden, was $8,284,515," and so on, and I ask if you know the amount of share stock issued by the Mutual Company at the time of consolidation of the companies now forming the Consolidated?

Mr. MATHEWSON: Objected to as immaterial and having nothing to do with the proposition.

6543 Mr. KIRBY: It has to do with the statement referred to by Yalden set down in the report.

Mr. MATHEWSON: No.

Mr. KIRBY: I do not want to go all through Mr. Yalden's testimony and show this thing in that way. If it is objected to and it is ruled out I will put it in and we can let it go that way, because it is point.

Objection sustained; exception.

A. The share capital outstanding at that time was three and one-half million dollars.

Q. By that you mean the par value of the stock?

A. Yes, sir.

Q. Do you know how much was paid in on that stock?

A. In arriving at my figure I deducted $1,000,000 representing the discount at which it was alleged that some of that stock was issued. I assume that half of the par value of $5,000,000 of the stock was realized.

Q. Had been paid in in cash?

A. Had been paid in in cash; and my calculation or my result of $6,275,904.96, eliminates $1,000,000 from their then share capital.

Mr. KIRBY: I ask now that that question be allowed to stand. I think the answer of the witness has shown very clearly the materiality of it.

The MASTER: I can easily reverse myself, Mr. Kirby, either now or at any time before I dispose of the case, and I shall not hesitate to do so if it seems to me to be necessary.

Q. Now, I refer you to page 6368, commencing at the bottom of 6367 and carrying over to page 6368, where you make a cer-
6544 tain assumption as to Mr. Edgerton's figures, that 33% of gas oil that was used at the 42nd Street station in enriching the coal gas made there?

A. Yes, sir.

Q. Is there any reference in any place as to the coal tar produced at 42nd Street upon which Mr. Edgerton, as you claim, based a loss of 33% from the gas oil used?

A. The testimony was to the effect that the Consolidated Company by its oil bench process was producing 33% of oil tar, and my testimony was to the effect that there was no foundation whatever for that statement.

Q. Then your statement here on page 6338 is based upon your assumption that he uses the coal tar produced as a basis of his calculation?

A. I assumed that because it was the only statement, the only records we have where 33% could be obtained by using any factors whatever in evidence in the report.

Q. You made a calculation coming to practically the same figures that he used, you assumed that was what he used?

A. Yes, sir; precisely so.

By Mr. BURR:

Q. Do you not understand that the stated object of the consolidation of the constituent companies into the Consolidated Gas Company in 1884 was to reduce the price of gas to the consumer by curtailment of expenses, centralization of their works and manufacturing at a minimum of expense.

Mr. MATHEWSON: I don't know as it makes much difference. I shall not object if counsel thinks it is important.

Mr. BURR: I would like to have Mr. Carpenter's views on that subject.

6545 The MASTER: What his understanding is as to some statements made some twenty odd years ago I do not believe to be material.

Q. Wasn't that the object of the consolidation? You were there at the time?

The MASTER: Stated object?

Q. Was it not, Mr. Carter?

A. I believe it was stated to be the object by some of the witnesses before the Senate Committee, Mr. Burr, and the fact that the price

of gas was reduced at that time from $2.25 to $1.75 a thousand would rather tend to support that statement.

Q. In other words——

Mr. KIRBY: The Legislature had nothing to do with that, I suppose.

The WITNESS: No, sir, it was a voluntary action on the part of the Consolidated Company.

Q. In other words you do not understand for a moment that the object of consolidation was to increase the price of gas to the consumer? It was to reduce it, was it not?

Objected to.

The MASTER: I do not see the materiality of that, Mr. Burr.

Question withdrawn.

Redirect-examination by Mr. MATHEWSON:

Q. This reduction from $2.25 to $1.75 in the price of gas was practically the first act of the Consolidated Company after it came into existence, was it not?

A. That was the case, yes, sir.

Q. Referring to this 33⅓%—should it not be, instead of cents, at page 3368?

A. Yes, it should be 33⅓%.

6546 Q. No matter what figures were used was any such result obtained at 42nd Street as Mr. Edgerton testified?

A. No, nor anywhere else.

Q. In reference to Mr. Edgerton's testimony regrading 21st Street, I read as follows from page 5361 of his testimony:

"I say in those places where there was nothing on the foundation or requiring a foundation I did not calculate it, and there was no definite description by Mr. Mayer. It just said foundations for machinery."

At page 5362 (Mr. Edgerton's testimony) "There were quite a good many in 21st Street, right straight through each range of buildings, foundation for machinery and no machinery on the foundation."

Now I certainly have quoted this accurately, and I ask you whether as matter of fact there were foundations for machinery there and no machinery on the foundations?

A. Not one.

Q. You have been questioned in respect to the depreciation charges of the company, and as to whether amounts were spent or not. Now where an item appears as a repair, is that a charge to operating expense?

A. Yes, sir.

Q. Where a piece of main or other apparatus is abandoned and taken out of your property account, does that item whether marked depreciation or otherwise also become a charge against operating expenses?

A. It does, yes, sir.

Q. Is there the slightest difference as to the result whether called a repair or depreciation or renewal?

A. No difference whatever.

Q. As a matter of fact, according to the English practice, repairs and renewals of that character or depreciation which needs renewal are simply charged to a general account called wear and tear, aren't they?

A. That is the case, yes, sir.

6547 Q. Now you were asked what would be the result if the proposed renewal were not made. Assume that a main was abandoned today, that would be charged against operating expense as a depreciation, would it?

A. Yes, sir.

Q. Would it make any difference as to its being charged against operating expense as depreciation, whether the plants stopped tomorrow or continued for a dozen years?

A. Not a particle.

Q. In other words the depreciation charge would be simply the ordinary charge which a company has to put into its operating expense to keep its plant up to par and unimpaired?

A. That is the case, yes, sir.

Mr. BURR: I do not like to make objections, but I think it is only fair to say that Mr. Mathewson should let the witness testify and not put all these things in his mouth.

The MASTER: Mr. Mathewson, I think that is a fair criticism. If you had an unintelligent witness you might perhaps be permitted to lead him to a certain extent.

Q. On page 1466 of the exhibits, the amount of depreciation charged by reason of loss in property account for the calendar year 1905 appears in total to be $282,219.67, if I read correctly, is that right?

A. That is the amount, yes, sir.

Q. Now, during that year while plant was charged down only $5,424 by reason of abandoned or lost apparatus, was a greater or less sum than that spent in additional plant which made up that amount of depreciation?

A. Why, the amount was expended during that period very largely in excess of that.

6548 Q. And if you take the entire plant account for the year 1905 by reason of the charging out of these items of depreciation representing property lost or abandoned, how much would the plant account be reduced in total if there had been no new construction?

A. If there had been no new construction whatever the property account would have been diminished by the total amount of depreciation $282,219.67.

Q. Now, as a matter of fact did the total plant account of the company during that period show such a loss?

A. It showed an increase, Mr. Mathewson, during that period.

Q. Would that indicate or would it not indicate that the plant

account had been replaced, taken in the whole by more than the amount of depreciation charged off?

A. It would so indicate, yes, sir.

Q. If you came to any particular item such as plant or mains or services or meters or meter cocks, for instance, is it pos-ible by a single year to get an average of expenditures of depreciation and replacement?

A. No, not necessarily.

Q. You spoke of something being renewals. If a piece of apparatus is charged off or lost that appears in what account primarily?

A. Depreciation account, the piece charged off.

Q. We will assume that it is main worth $1,000. New main is laid in that year or during the period which you assumed, the amount we will assume being $3,000. Is that charged simply to construction?

A. The new main?

Q. Yes, sir.

A. As construction, yes.

Q. As a matter of fact, how much of that $3,000 expenditure is required to offset the main lost and abandoned, the original main lost and abandoned having been stated to be $1,000.

A. $2,000.

6549 Q. No, you do not understand.

A. The entire $3,000 has got to be expended unquestionably, if I understand your question.

Q. To replace that main I assume to be worth $1,000?

A. Yes; $1,000 is required to offset the loss in the main that was abandoned.

Q. And how would your capital account then stand at the end of the period as compared with the beginning?

A. Augmented $2,000.

Q. So as a matter of fact what you call renewal, is it anything else than the amount required to pay for depreciation in the particular line?

A. Nothing else.

Q. When you said that 10.89 had been spent on the average durmg the 20-year period from 1884 or 1885 in repairs and renewals, did that take into account any reserve or contingent or other fund which might be required on account of removal to Astoria or anything else than merely to keep the plant in fine physical condition?

A. The expenditures were simply for the purpose of keeping the plant in good condition and repair, Mr. Mathewson, and included nothing in the shape of reserve for any future contingencies.

Q. Have you Exhibit 79 there?

A. No, sir.

Q. You stated to Mr. Kirby that the amount of $14,464,548.62 came out of earnings, did you?

A. No, sir.

Q. How much of it does come out of earnings?

A. $4,770,982.72 comes out of earnings.

Mr. KIRBY: He never stated to me that the fourteen million came out of earnings.

Mr. MATHEWSON: I understood him to do so.

Q. Then the amount of that which comes out of earnings is simply the amount which equals the depreciation which has been
6550 charged off by lost apparatus?

A. That is the case, yes, sir.

Q. As to these repairs $12,331,666.68, from what source do they come?

A. Out of earnings.

Q. And you claim that the net increase represents, does it not, the amount of construction in these various classes of apparatus, less the amount of that construction which offsets depreciation by loss of apparatus and plant?

A. That is the case, yes, sir, and represents an investment of capital.

Q. Mr. Kirby referred to the replacement of a six-inch main by a nine-inch main and said that if the nine-inch main had been laid originally it would have been charged to capital. Isn't it charged to capital anyhow?

A. It is.

Q. If you replace a six-inch main by a nine-inch main what becomes of the value of the six-inch main?

A. Charged off to depreciation and comes out of the capital account and the nine-inch main is capitalized at its cost.

Q. And if you had a new given apparatus and you required more capacity, to use an expression of Mr. Kirby's, which would you do, throw that apparatus away or get additional apparatus?

A. We would get additional apparatus.

Q. There would be no replacement then?

A. There would be none.

Q. What would be the effect on the consumer of gas had this company proceeded in 1823 on the theory that they must put in mains enough and mains large enough in the streets to furnish the requirements in 1923.

The MASTER: Isn't that a matter of argument?

Mr. MATHEWSON: Well, almost. It is rather provoked by
6551 the suggestion that we ought to have built our plant originally on that theory, or had such foresight.

Q. As to the putting on of a new roof, does it make any difference as to its being charged into operating expense? Would you call it a repair or a renewal?

A. It would make no difference in either case. The earnings would have to bear the expense of replacing the old roof with a new one.

Q. Mr. Kirby referred to the time when a main would be inadequate. We will assume a six-inch main on one side of the street and we will assume that it would be renewed by an eight-inch main; in such case would that be the ordinary course or would you lay another six-inch main?

A. The practice would be, I think, to lay another six-inch main on the other side of the street and so divide the supply in that street between two mains and be more conveniently situated as to the curb line, etc.

Q. How as to services?

A. And as to the length of services and the convenience in reaching them.

Q. Would you think it would be wise policy to abandon a six-inch main that was doing good service under those circumstances?

A. Not good policy, Mr. Mathewson.

—. Mr. Kirby referred to the coke sold or transferred by coal gas plants to water gas plants. Now, if the coal gas plant stands the expense of transferring the coke, is that cost of cartage taken into account in the figure at which it is transferred?

A. Yes, sir.

Q. If on the other hand the water gas station sends for it would that mean a lower price at the yard of the coal gas station?

A. It would.

Q. Would it make the slightest difference to either station
6552 as to which course was pursued either in expense or final result?

A. No difference in the final result.

Q. You observed Mr. Kirby called attention to *Field's Analysis*, where he spoke of the sale by the London companies of ammoniacal liquor and sulphate. Now sulphate is not produced, is it, by the gas companies without any process of manufacture?

A. No, it is not. It is a product of the ammoniacal liquor.

Q. What would that indicate?

A. That would indicate an investment by the company in a suitable working plant and such working force as would be necessary to operate the plant, handle the production, and to sell it, market it.

Q. Did you find anything in *Field's Analysis* that indicated to you that the return on the capital invested in the plant to produce that sulphate had been deducted in getting the forty-eight cents to which Mr. Kirby referred?

A. No, sir, no evidence of that kind.

Q. That would not then represent a net figure, would it, if that were the case?

A. No, not even under those conditions, assuming it was net with respect to the cost of converting it into sulphate.

Q. You stated yesterday that you did not remember the cost to the Consolidated Company of treatment of coal tar and producing the pitch and dead oil as compared with what it might cost the Barrett Company to do that work. Did you in your considerations to which you referred, make estimates at the time as to what it would cost the Consolidated Company itself and how the company would come out in net results?

A. Yes, sir.

Q. As compared with selling it to the Barrett Company?

A. Yes, sir. I did make such calculations and estimate.

6553 Q. What was your conclusion in that regard?

A. My conclusion was if the Barrett Company would be

satisfied to retire from the field and leave us the market we might do very well, but with the prospect of competition with them, I did not see my way clear to recommend the necessary investment for taking up the development of that product.

Q. Now, reference was made yesterday to the use of eighteen pounds of coke, per thousand of gas made at the 42nd Street station. Is there any such result as that reached at the 42nd Street station?

A. No, sir. The station records indicate that something like, well between 19 and 20 pounds of coke were used under the retorts at that station per thousand cubic feet of gas made, but as the gas made includes all the oil gas that was made at that station, and as the manufacture of the oil gas produced a great deal of drip oil, which was used under the coal gas benches, the number of pounds of coke used under coal gas retorts at that station calculated in that way per thousand cubic feet of gas made is of no value for any purpose of comparison.

Q. You were also asked in reference to the 111th Street station and said that certain apparatus would have to be added in order to operate the station. Is that the station of which the city took a part?

A. Yes, sir, they condemned it. They took a part of it under condemnation proceedings.

Q. And the apparatus which you state was good—the company's capital is invested in it, is it?

A. Yes, sir.

Mr. BURR: Hasn't that already been gone over, the 18th Street station?

6554 Mr. MATHEWSON: No, not that particular point. This is 111th Street.

Mr. BURR: Well, 111th Street also.

Q. Is there any reason that you know why that plant has not been completed in full except the action of the city in condemning and taking a portion of the property?

A. I know of no other reason.

Q. You stated yesterday you had a knowledge of the financial department of the company. What did you intend to include in that?

A. Well, I said that yesterday in answer to Mr. Burr's question whether I was not more particularly identified with that department of the business. Perhaps in doing so I may have conveyed the impression that I was not very particularly concerned in the entire proposition of the distribution of gas. Such is the case, however.

Mr. BURR: I think his testimony shows that, Mr. Master. It speaks for itself. I don't think we need to pursue that line of inquiry further.

Mr. MATHEWSON: I am quite able to determine how far I will pursue the line of inquiry, but I did not intend to pursue it any further.

Q. You were asked whether the renewals and repairs in 1905 as expended were ample. What do I understand you to say on that subject?

A. The expenditures took care of such renewals and depreciation as developed during the year or became apparent, but the charge had nothing to do with the possibilities of future requirements of that particular character or in the nature of contingents or unforeseen expenses.

6555 Q. Do they represent what you consider an average, a fair average, amount?

A. On the contrary, the amount expended for renewals of plant in the year 1905——

Q. I am speaking in total?

A. Oh, no; they do not represent an average by any means, and it could not in our judgment be used in connection with any estimate in connection with the cost of gas for that reason.

Q. Do you concur with the statement of witnesses for the defendants, Mr. Marks and Mr. Hall, that an average period must be taken?

A. That is our contention.

Q. You stated yesterday, referring to the dividends from other expenses, if I understand you, that they were included in miscellaneous income?

A. If I so testified I was in error. They are not included in miscellaneous income, but are included in a statement of income from securities owned, not the statement of miscellaneous income.

Q. And the amount of the miscellaneous income it has been testified to in this case, as I understand, was reduced to cents per thousand.

A. Yes, sir.

Q. And offset ultimately as a receipt against the operating cost of gas, by different witnesses?

A. That was the case, yes, sir.

Q. That includes all the miscellaneous income, doesn't it?

A. Yes, sir.

Q. Where work is done by the Consolidated Company for another company under an arrangement, like laying of mains, for instance, does that go into the operating expenses of the Consolidated Gas Company at all?

A. No, sir. All of the expense incurred in that sort of work is charged, of course, to the other company.

Q. And as to gas apparatus, gas burners or gas stoves, does

6556 the gas company in the interest of its business repair that apparatus where it is necessary for the consumer in order to add to the consumption of gas regardless of whether the company sold the apparatus or not?

A. Why, yes, decidedly, as a matter of policy.

Q. Suppose your gas stove business was entirely eliminated from the company's business, would that have any effect on the repairs to gas stoves as an operating expense?

A. It never could be eliminated. We may not rent stoves, or the consumers may elect to purchase stoves instead of renting them, but in either event we would consider it good policy to look after the stoves and keep them in repair as being one of the most important factors in the development of the gas business in the future.

Q. Now, at page 1463 of the exhibits I find that the item of legal expenses paid in 1905 for some services rendered in 1904 was excluded by the accountant. These bills for legal expenses did not appear until 1905, did they?

A. No, they did not.

Q. Is there any possible way in which you could have charged them into the statement for 1904?

A. No, no possible way, nor is there any possible way in which we might in 1906 have charged similar disbursements applying to 1905 into the year 1905.

Q. Now, in reference to the year 1905, if you excluded these on the theory of the accountants, would it not be necessary to include the amount of legal services rendered in 1905 for which no disbursements were made?

A. I should say most decidedly.

Q. Did you pay your legal bills incident to the gas investigation which took place in 1905 during the year 1905?

A. No, sir.

6557 Q. Is it possible in the conduct of your business to render your operating expense statement in any other way than it is?

A. No, impossible to do it by any other process.

Q. As a matter of fact have you any reason to suppose that legal expenses rendered in the year 1905, not charged until 1906, would be any less in amount than those rendered in 1904 which were charged in 1905.

Objected to as incompetent, immaterial and irrelevant.

Objection sustained.

Q. You were asked as to your knowledge in reference to the accounts of the original companies and the cost of the property of the original companies coming solely from your examination of the testimony before the committee of 1886. You knew something about the Knickerbocker plant yourself, didn't you, after 1884?

A. Yes, sir.

Q. Is it or is it not a fact that the Knickerbocker plant was so large, so extensive after 1884 that the Harlem plant was shut down and the entire upper part of the city furnished from the Knickerbocker plant for some time?

A. That was the case.

Q. And that your Knickerbocker plant appeared in the $20,942,000 to the extent of only $810,000?

A. That is all.

Q. Largely franchises?

A. The testimony showed it cost over $3,200,000.

By Mr. BURR:

Q. Have you learned that since 1884 or did you know that in 1884?

6558 Mr. MATHEWSON: He knew that immediately following 1884, that that course was pursued.

Q. You were not called as a witness before the investigating committee of 1886, were you?
A. No, sir.
Q. You had that knowledge at that time?
A. Yes, sir.

By Mr. MATHEWSON:

Q. Referring to the comparison between real estate to which counsel has called your attention, and made by Marwick, Mitchell & Co., the estimated value of the real estate in 1884 as they gave it was something over $10,000,000, wasn't it?
A. $10,322,000.
Q. But that was the real estate which was appraised at that time and was the real estate of all those companies, was it not?
A. That is the case, yes, sir.
Q. Whereas the real estate which they put on the other side of the account showing original cost covered the real estate of only five companies, did it not?
A. That is the case.
Q. The Knickerbocker real estate was not in there at all?
A. Was not in there at all.

Mr. BURR: Haven't we gone over that on direct examination?
Mr. MATHEWSON: No, we did not.

Q. So that did the difference between $10,322,000, the valuation of 1884 as stated by Marwick, Mitchell & Company, and the figure you gave as the cost of the real estate, actually show the depreciation of the real estate whose cost they showed?
A. No, it did not show it.
6559 Q. It did purport to do so?
A. It purported to do so, yes, sir.
Q. You were asked as to whether or not an arrangement had been made as to the price to be paid to the Astoria Company for gas. Do you know what method of bookkeeping has been determined upon yet in treating that case?
A. No, there has been no method yet determined. It is merely a matter of bookkeeping.
Q. Is it anything else?
A. Nothing else.
Q. Do you know whether it has been determined merely to charge the gas on the Astoria books at the bare cost and have the amount added by the Consolidated to represent the return on the investment at Astoria, or whether it is intended to charge to the cost of gas there the amount to make a return on that investment before the Consolidated receives the gas?
A. Those matters have not been determined yet. They are merely matters of bookkeeping, but they have not been decided.
Q. You were asked in reference to the Mutual stock, the Mutual Gas Light Company in 1884. When you testified yesterday as to the Mutual property were you referring to the par value of the stock outstanding or to the assets as found by the 1884 commission?

A. The actual assets of the company. No reference whatever to the share capital.

Recross-examination by Mr. KIRBY:

Q. Where did you get your values for the Knickerbocker plant such as you have just given?

A. From the testimony as found in Senate Document 47.

Q. And from no other source?

A. No other source than from that testimony.

6560 Q. Mr. Mathewson has taken occasion to refer to *Field's Analysis* again. I ask you if it is not customary when figures are compared to compare net figures with net figures and gross figures with gross figures?

Mr. MATHEWSON: How does he know except you point out a case.

Mr. KIRBY: He is an accountant and is skilled in all matters of this kind.

A. I know this, that that is not a very flexible proposition, that *Field's Analysis*. It furnishes year after year facts under forms that were used years ago and have not varied since, and they have to take a company's statement and adopt it in a measure to their form, and how they do it I don't know.

Q. If your company was getting out figures showing costs of various substances, comparing one works with another, would you compare figures at one works on net basis, and figures at one works on gross basis?

A. No, we would compare both the net and gross and the expenses that entered in between the two.

Q. But it is your endeavor to bring that down to a basis which is possible of comparison?

A. Decidedly.

Q. And such basis would be net to net or gross to gross?

A. It would be.

Q. I call your attention to the columns in *Field's Analysis* that we were looking at yesterday, ammoniacal liquor and sulphate of ammonia. The Gas Light Company in London per thousand cubic feet of gas gives a statement of 2; the Commercial of 1.75; the South Metropolitan 2.31; the average 2.09. Is there anything in your method which would show you any of these companies were

6561 selling ammoniacal liquor or sulphate of ammonia?

A. Why, no, because those companies did not make exclusively coal gas, all of them; some of them made oil gas, and you get a factor when you have oil gas in the proposition that creates variations that do not mean anything.

Q. It might be one and might be the other?

A. It might be one and it might be the other.

Q. And it might be both?

A. And it might be both, Mr. Kirby.

Q. You have spoken of the depreciation account. I think in answer to my question of yesterday you said there was no account under the name of depreciation.

A. No, I didn't say so.

Q. Have you what is known as a depreciation account?

A. That is the account in which we carry the items shown in this exhibit of Marwick & Mitchell during the year, which is closed at the end of the year into the renewal and contingency account.

Q. What is the name of that account?

A. The name of that account is depreciation account.

Q. And such depreciation account has been carried as such since 1884?

A. As such since 1884.

Q. And it is under that heading of depreciation account that renewals are charged?

A. That is the case; and only renewals.

Mr. KIRBY: Mr. Carter has taken occasion to refer to the Mutual Company, the cost there, and to make a comparison between Mr. Edgerton's figures and the Mutual Company saying that he got his information from the testimony before the State of New York Commission of Gas and Electricity, and I think it was only proper under the circumstances that Exhibit 31 before that commission,
6562 being statement furnished to the State Commissioners of Gas and Electricity by the New York Mutual Gas Light Company, cost of gas for the nominal year ending October 31, 1905, be placed in evidence.

Mr. MATHEWSON: I shall not offer it. Mr. Kirby is entirely wrong in his statement. No such evidence offered.

Mr. KIRBY: No such evidence offered. That is quite true.

Mr. MATHEWSON: He did not compare Mr. Edgerton's result with the Mutual Companies. He merely took December, 1905, and compared the Mutual cost with the Consolidated cost.

Mr. KIRBY: Very good. Then can I have Mr. Carter's figures for December, 1905, which you have just stated he didn't compare.

Mr. MATHEWSON: He has already testified.

Mr. KIRBY: He has testified to the result but not to the items going to make up the result, and I was trying to make those shortcuts of which Mr. Carter spoke.

The MASTER: I have no doubt if he has them in his memorandum he can send them down and put them on the record as part of his testimony.

Mr. KIRBY: If he has not let him so state.

Mr. MATHEWSON: What figures do you mean?

Mr. KIRBY: I will call attention to it after recess.

Mr. MATHEWSON: No, let us have it now.

The MASTER: If it is anything to be done as part of Mr. Carter's testimony let us have it now.

6563 Mr. KIRBY: If you will look at page 6372 of the printed testimony, you will find this question:

"Q. And how about the station cost of the Mutual and Standard which operate in New York City and have their plants here as compared with the station cost of the Consolidated at its water gas stations? A. The Mutual is higher."

Then a lot of objections follow.

Mr. MATHEWSON: That is another thing, station cost for the year.

Mr. KIRBY: Then on page 6374: "A. The station cost of the Standard for the nominal year ending October 31st, 1905, was 30 cents or .62 of a cent lower than the Consolidated cost. Q. And it had a single station as against many for the Consolidated? A. Yes, sir. The Mutual cost was 34.34 of a cent for the same period."

That is for the nominal year, as you will see by referring——

Mr. MATHEWSON: Of course, there is no question about it. The comparison of oil was for December, 1905, as to the two companies.

The MASTER: You want to know how he got at his 34.34?

Mr. KIRBY: Yes, and put in his statement for the nominal year as placed before the Gas Commission and to which he referred.

The MASTER: Well, you are certainly entitled to cross-examine him about that 34.34. I do not say that you are entitled to put in evidence.

Mr. KIRBY: I will ask him the details of that then.

Mr. MATHEWSON: You cannot ask him from that. You
6564 will have to get your Mutual *printed* exhibit, I think.

The MASTER: I do not think it is of enough importance to waste any great amount of time on.

By Mr. KIRBY:

Q. Referring you to page 6374, I ask you if you will give the totals which went to make up the figure of 34.34 given as the Mutual cost, and ask you if you obtained those figures from the statement before the State Board of Gas Commissioners?

A. The figures were prepared from the statement that was prepared for the State Board of Gas Commissioners. I don't know whether that is a copy or a correct copy of it.

Q. Have you such copy as you need?

A. Yes, sir, I have.

Q. Can you produce that?

A. I can.

Q. Will you produce it? Just take and read off the items, then we will have it?

A. The details of the calculation are as follows:

(Take in Exhibits.)

At 1.40 P. M. a recess was declared till 3 P. M.

After Recess.

January 30, 1907—3:00 p. m.

FREDERICK J. MAYER recalled by complainants in rebuttal.

Direct-examination by Mr. MATHEWSON:

Q. Mr. Mayer, you have read the testimony of Messrs. Edgerton and Marks respecting their valuation of plants, apparatus, general connections and holders?

A. I have.

6564*a* NEW YORK MUTUAL GAS LT. CO.

COST OF GAS FOR THE NOMINAL YEAR ENDING OCT. 31, 1905.

		Cost per M. made
Coal Used in Generators, 31,812.75 Tons, at $4.40	$139,976.08	06.17
Coal Used Under Boilers, 13,220.18 Tons, at $2.3588	31,183.57	01.38
Coal Handling	1,684.48	00.07
Oil Handling (Drip)	5,181.95	00.23
Gas Oil, 10,725,228 Gals., at $ .04495	482,120.96	21.26
Oxide, 33,006 Bus., at $ .1814	5,986.19	00.26
Water, 6,135,350 cu. ft., at $1.00 per M.	6,135.35	00.27
Sundries, Wood, Waste, etc	791.50	00.03
Purifier Labor	5,056.84	00.22
Other Labor	51,843.79	02.29
Repairs	31,478.77	01.39
Expense at Works	10,595.75	00.46
Distribution at Works	7,241.90	00.32
Total	$779,277.13	34.35
Less Wharfage	323.29	00.01
(Gas Made, 2,268,275,000 c. f.)	$778,953.84	34.34

6565 Q. And have you, so far as you are able, in the time at your disposal gone over the schedules that they have filed?

A. I have.

Q. You have observed the estimates that they have made on your valuations, and the figures that they have given?

A. Yes, sir.

Q. Now, taking first Mr. Marks' values, do you find that Mr. Marks has omitted any apparatus which you valued?

A. Yes, sir.

Q. Have you prepared a schedule stating in some detail what he did omit which you have discovered?

A. Yes, I have.

Mr. BURR: Do I understand this is different from the original valuation of the apparatus omitted from the schedule as presented by Mr. Mayer?

Mr. MATHEWSON: Yes, Mr. Mayer. That Mr. Marks has omitted the apparatus which Mr Mayer valued.

Mr. KIRBY: Which valuation is in the testimony.

Mr. MATHEWSON: Yes. Certainly. I am referring now to Mr. Mayer's——

Mr. BURR: Previous testimony.

Mr. MATHEWSON: Certainly.

Q. Does this schedule which I show you contain a statement of the omitted items so far as you have discovered?

A. Yes, sir.

Q. I see it consists of several columns, one of which is headed Mayer's Cubic Contents. Under that column appears the cubic contents as you estimated them and your cents per cubic foot under that estimate, does it not?

A. Yes, in some instances.

Q. And the second column is: "Mr. Marks' Cubic Contents"?

A. Yes.

6566 Q. And the contents per foot which he estimated?

A. Yes, sir.

Q. The next column is his valuation, and the last column is your valuation?

A. Just the reverse, the third column is mine and the fourth column is Mr. Marks'.

Q. And in the last column the difference appears both in statement and cubic feet, and in the cost does it not?

A. Yes.

Q. But where you have a minus sign in the last column before any amount, what does that indicate?

A. It means that it is less than my valuation. Where there is a plus sign it means it is more.

Q. And where items are entitled entirely they are marked "omitted" if I understand this correctly, and the valuation which is inserted in that then is your valuation of that particular item?

A. That is right.

Mr. MATHEWSON: I offer this schedule in evidence as Complainant's Exhibit 370.

Mr. BURR: I object to this Mr. Master, because apparently what it contains is already in the evidence. This does not purpose to give anything more, for instance, than the differences between Marks' cubic contents and Mayer's cubic contents. That has already appeared in the record. Mayer's valuation appears on the record, and Marks' valuation appears on the record. So far as matters have been omitted by Mr. Marks, I have no objection to that being called to the attention of the Master, but this spreading of a lot of comparative figures on the record I object to.

6567 The MASTER: If that tends, as I think it does, to save the time of the witness in pointing out what he claims to be the errors in computation of other witnesses, I will let it in.

Mr. MATHEWSON: But more than that, Mr. Master, this contains the omitted items and the cubic contents Mr. Marks employed, which were mostly included in a general schedule, not put in evidence, but which as I recollect he called attention to and submitted to us for our examination and criticism.

The MASTER: I will admit it.

Received in evidence and marked Complainant's Exhibit 370, January 30, 1907.

Mr. BURR: I except.

Q. Now, have you also made up a schedule, Mr. Mayer, for convenience in giving your testimony for counsel, showing the valuations as given by Mr. Marks originally, and adding back the items of depreciation which he deducted, so as to get the original cost without depreciation, as per his figuring?

A. I have.

Q. And also adding in the omissions in the cost of each plant, where you have noted omission of apparatuses?

A. I have.

Q. And then for purposes of comparison with your own testimony have you upon that basis of original cost computed the ten per cent. engineering charge, which you consider to be proper, and five per cent. interest?

A. Yes, I have added that to it.

Q. And is this schedule which I now present separated as to stations, the result of adding these omissions and making the other corrections to which I have just called your attention?

A. Yes, sir.

6568 Q. Now, then the original cost taking all the plants together with the ten per cent. for engineering charge and five per cent. interest charge added to Mr. Marks' valuation, together with the omitted items, amounts to how much?

A. The total of plants and holders and stations $14,345,635.00.

Q. As against your total without depreciation of how much?

A. $16,137,477.00.

Q. Or about $1,800,000 less?

A. Yes.

Q. And you have not in this $14,345,635.00 included the cost of installing apparatus, setting it up, while Mr. Marks may have given the cost of apparatus merely delivered at the station?

A. No, I have given his cost as given in the testimony.

Q. You have read his testimony where he stated that he considered your value of apparatus substantially correct.

A. Yes.

Q. And did your valuations for the individual items of apparatus to which he was testifying include any ten per cent. and five per cent. as they have appeared on your schedule of individual items, or do you add that ten per cent. and five per cent. at the end?

A. At the end, each station.

Q. So that the individual valuations of the different pieces of apparatus in your case do not include the ten per cent. and the five per cent.?

A. They do not.

Mr. MATHEWSON: I offer this paper in evidence.

Received in evidence and marked Complainant's Exhibit 371, January 30, 1907.

Q. Referring now to Mr. Edgerton's estimate of value of plant less depreciation, $9,367,344.25, do you find that he com-

6569 puted his three per cent. for engineering and superintendence on the original cost of the plant new or on the value of the plant after you have taken out depreciation?

A. After depreciation was taken out.

Q. Is that in your judgment a proper way to compute the engineering expenses?

A. It is not.

Q. Why not?

A. Because no depreciation exists when you make your estimate originally. You estimate on a new plant, to which ten per cent. for general engineering is to be charged.

Q. Well, what have you to say as to the sufficiency of three per cent., according to your experience and knowledge, to cover the general expenses for engineering and superintendence and the other items which are not included in the amount paid to the contractor?

A. The actual expense is nearer fifteen per cent. than ten per cent.; in some instances the grading consists of the removal of twenty to twenty-five feet of earth on top of the original ground, before you get the surface for the foundation.

Q. Now, Mr. Edgerton has also employed four per cent. as the amount allowable for interest. Do you find that he has also computed the four per cent. on the depreciated value of the plant instead of on the original value?

A. Yes, sir.

Q. Is that a correct method of procedure?

A. It is not for the same reason that the engineering charges are not chargeable on that basis.

Q. Mr. Edgerton stated he allowed four per cent. because he thought that a somewhat shorter period than two years might be required to construct these plants, if they were to be constructed. What is your judgment as to the period required being less than two years?

A. I know it cannot be done in less than two years.

Q. You observe that Mr. Edgerton in comparing his values
6570 of depreciated plants placed only value on apparatus after depreciation was taken, or value on depreciated apparatus in many instances, did you not?

A. Yes, in many instances.

Q. But coming to the valuation of the plant, now upon Mr. Edgerton's basis, have you made a computation adding in the original cost of apparatus as given by him, or the valuation of these items new, where he has accepted your valuation?

A. I have.

Q. And will you state what that would make his valuation upon his own basis.

A. The second column there I think, that is excluding the omission——

Q. Excluding the omission——

A. $10,266.704.

Q. And do you find that he has omitted various items of apparatus?

A. I do.

Q. What do those which you have observed that he has omitted, amount to in the total?

A. $124,544.

Q. And $124,544 is your valuation of the omitted items, is it?
A. Yes.
Q. That would make a total original cost new, including these omitted items, of how much?
A. $10,388,248.
Q. And if you include his engineering charge at three per cent. and interest at four per cent., what would the total be?
A. $11,115,425.36.
Q. Now, if you were to add the engineering charge of ten per cent., which you say is the minimum figure, and the interest charge of five per cent. on the basis of two years' period required, what would the total cost be, new?
A. $11,998,425.
Q. Now, the sheet which you have here shows the detail by stations on such testimony, does it?
A. It does.

6571 Mr. MATHEWSON: I offer that in evidence.
Received in evidence and marked Complainant's Exhibit 372, January 30, 1907.

Q. Now, in reference to your method of computing the valuation of buildings in the time at your disposal, Dr. Marks claimed at the outset in his testimony that such a basis of valuation would not give correct results. What is the fact in reference to that?
A. Well, I know from my own practical experience that the method which I pursued in establishing the cost of the buildings, basing the same upon a certain amount per cubic foot is absolutely correct, particularly when a number of buildings such as form a gas plant are to be considered. It is possible that in one or the other of the buildings a slight difference may occur in the unit of value, but in the total aggregate for all buildings, I am absolutely sure that the valuation is correct.
Q. Have you made comparisons between such estimates and the actual cost of buildings in order to determine whether it does figure up substantially correctly?
A. I have. I have made an estimate of the 132nd Street governor and boiler house. In fact, that estimate was made last summer and the unit of valuation per cubic feet was based upon such detailed estimates. I have made estimates of the sheds 1 to 6 at the 21st Street station. I have made estimates of the foundations of the old and new generator house at the 21st Street station. I also obtained the actual cost of the various buildings, retort houses, that have just been completed under my own supervision and in accordance with my designs, and the actual cost of such buildings also indicates that my applied units of valuation are absolutely correct.

6572 Q. Well, if there is any difference, do you find that your unit of valuations, the unit of value used by you, are greater or less than the unit of value and actual cost of these buildings?
A. If anything they are a little less than those of the actual cost of buildings I just referred to, and some of these buildings, one at least, was not constructed in New York at all. They were con-

structed under conditions which are not applicable to New York cost.

Q. Less expensive or more expensive?

A. Less expensive, that is, less for labor in particular, and still the unit cost per cubic foot shows almost as high as the one I have applied.

Q. Now, in estimating the 132nd Street governor and boiler house for the purpose of testing your unit figure, was that estimating from drawings and detailed specifications?

A. That was from drawings, specifications, and also from the building itself.

Q. And have you such drawings and specifications here?

A. I haven't the drawings and specifications, but I have the detail estimates.

Q. Now, Dr. Marks subsequently used your cubic contents of value in computing his valuation of buildings?

A. Yes, sir.

Q. And he stated he took as the unit of the governor and boiler house at 132nd Street, 14-4/10 cents per cubic foot, as against the 13-2/10 which was your value?

A. Yes, sir.

Q. Did you use that unit of value or did you use the cubic foot value which you employed at 132nd Street in the same method in reference to all the other buildings, making allowances for changes as due to the character of buildings?

A. Well, yes, each house the value is proportioned to the character and detail in design of that particular building, adapted to such conditions.

6573 Q. And as Dr. Marks took a higher figure for the 132nd Street, which he adopted as a unit, if he had followed the same value throughout, wouldn't his valuation of buildings have exceeded yours instead of being less?

A. It would undoubtedly.

Q. Now, he proceeds taking the 132nd Street building to apply this as the unit of the other buildings, and he referred particularly to the 112th Street building, where he allowed fifteen cents per foot as against 14-4/10 for the 132nd Street building with practically the same unit——

A. Yes.

Q. Is the same unit applicable to these two buildings?

A. It is not.

Q. Why not?

A. Well, the superstructure apparently while of identical construction or similar in construction, the foundations vary entirely.

Q. Which was the more expensive construction?

A. The 111th Street building, for various reasons. First, because it contains a very much larger amount of machinery, and then the foundations were carried down to a depth of about sixteen feet, which was necessary on account of the two large holders which were constructed in the immediate neighborhood, demanding excavation

there for the reason that all the earth on the original site of this building had to be removed.

Q. Now, Dr. Marks referred to the finish of the 132nd Street buildings as finished substantially more expensively than the 111th street?

A. There is very little difference in the finish of any of these buildings; the finish forms but a very small portion of the total cost; although in these two instances they have some enameled brick finish in the interior of the rooms.

6574 Q. In examining the unit figure Mr. Marks employs in reference to the other buildings as compared with the 132nd Street, are you able to find any consistent relation in the character of buildings and the unit figure used?

A. I am not.

Q. Do you find anything in his figures which changes your own estimate as originally made, as to the value of buildings?

A. I do not.

Q. I think Dr. Marks gave no details for the different buildings.

A. No.

Q. Except as to the cubic feet?

A. No.

Q. Now, taking Mr. Edgerton's detailed prices he computes the 132nd Street building at $21,160, but his schedule it appears would call for a value of $30,000.

A. It does.

Q. Now, have you a detailed estimate of the 132nd Street building comparing your values with Mr. Edgerton's, pointing out wherein he has omitted items or is in error?

A. I have.

Q. Is this it (handing witness paper)?

A. Yes, sir.

Q. And does the comparison of the figures or the items as given under the head "Mayer's Valuation" as compared with the column "Edgerton's Valuation" indicate the extent of the figure in which you think he is in error in each case?

A. It does.

Mr. MATHEWSON: I offer this paper in evidence.

Received in evidence and marked Complainant's Exhibit 373, January 30, 1907.

Q. Now, you have prepared a detailed estimate, have you not, to check your figures on the No. 2 shed at 21st Street?

A. Yes, sir.

Q. And that would give a total of the detailed estimate of how much for the shed?

A. $67,846.

6575 Q. Well, that is the amount of your original schedule, is it?

A. That is the amount for the original shed, the total estimate, first value, $65,888.13——

Q. That is a trifle less than your original estimate?

A. Yes.

Q. But did this average that you employed of 16 cents per cubic foot, for the sheds at 21st Street, would that apply also to the shed No. 6, as well as the purifier house and condenser there?

A. It applies to all sheds from 1 to 6, and some of them are at present used as purifiers and condenser houses.

Q. How do the purifier house and condenser house, as well as shed No. 6, compare in expense of construction with shed No. 2?

A. Well, the average for all of them is 16 cents a cubic foot, for the reason that the purifier house and condenser house have double floors and more foundations with apparatus which is omitted in the case of the shed.

Q. So that the average of 16 cents you would consider fair?

A. It is fair for all of them.

Q. Now, in figuring out the valuation of the coal shed at this station by a detailed estimate according to your figures you find results how?

A. I find a value of $69,830.

Q. And what have you got there in your schedule, as the value, according to cubic contents?

A. $63,168.

Q. And to what is the increase in value by the detailed estimate due in general?

A. At the time the original valuation was made the inclined bottom supported upon timbers for the carrying of coal was not calculated in detail. Such has been done now and that increases the original value given.

6576 Q. Now, you have testified as to the foundations which you have employed in your apparatus and buildings. How do you find what character of foundation was used, or determine what character of foundation to figure upon in these estimates?

A. Wherever the character of the ground appeared doubtful or the character of the foundation, in each instance, I referred to drawings where I could find such, and where I could not find drawings I got the information from the people who had been at the works for a long time.

Q. And isn't it a fact that some of these buildings are on soil that is way below the depth of the street, that is on low ground?

A. All of the buildings are on such soil.

Q. Now, from your experience in addition to the information that you got from books and other sources what would you say as to the character of the foundations which must be required under buildings on such soil?

A. They could not be constructed without pile foundations.

Q. Now, do you find on Mr. Edgerton's valuations for these buildings to which I have called your attention, that he has made any allowance for pile foundation or any foundation except the ordinary foundations that could be used in the hard soil?

A. He had not, and in some instances he did not allow enough for ordinary foundations.

Q. Now, Mr. Edgerton suggested that there were no foundations under the water gas apparatus which he was able to ascertain, have

you a sketch here showing the foundations under these apparatus as they really exist?

A. I have, and this sketch was prepared from drawings which I saw at the works, which I was told were used for the construction of these foundations.

Q. Did those drawings appear to be correct so far as you
6577 could check them by your own observation?

A. They did.

Q. And how did you find this foundation was constructed, of what material was this foundation in the old generator house?

A. In some of the drawings I saw at the works show a depth of foundation of from 8 to 10 feet below the surface line, supported on piles and stone flagging.

Q. What did you find that the foundation under the water gas apparatus consisted of?

A. The foundation under the water gas apparatus consisted of solid concrete five feet in depth, under the superheater and carburetter and 5 feet 6 inches of depth under the generator.

Q. Did you find that Mr. Edgerton in his estimate made any allowance for these expensive foundations?

A. No, sir.

Q. What did you find the detail estimates for the foundation under the buildings as well as the apparatus give combined with the old and new generator houses?

A. The total of all foundations for buildings and apparatuses is $88,595.

Q. Now, at what figure did you carry these foundations in the new and old generator houses in the schedule of valuations which you presented, and which are critisized by defendant's witnesses?

A. The valuations of the foundations for the two buildings amounted to $32,197 in the instance of the new generator and $31,065 in the instance of the old generator house.

Q. Making a total valuation of for the two houses?

A. Of $63,262.

Q. Well, now, it appears that the difference between that and the detailed estimate you have specified is $25,333. How is that difference taken care of?

A. In the application of the unit values per cubic foot of
6578 building done. I have allowed for ordinary foundations constructed in soil that requires no re-enforcement. In other words, in all my unit valuations on buildings, by the cubic foot foundation, of about four feet depth in ordinary soil below the surface line are included. Therefore, this only represents the difference——

Q. Now, have you endeavored to establish the value of foundations given by Mr. Edgerton from his testimony in relation to these buildings?

A. I tried to, but it was impossible as the foundations were not given in detail separately from the rest of the building.

Q. Have you examined the values which he gave for the excavation of these buildings?

A. The excavation of these buildings? A. The excavation is chargeable to the foundations only. I have examined such items in Mr. Edgerton's testimony.

Q. What do you find in that regard?

A. In the instance of the old and new generator house I find that he has a total item for excavation amounting to 629 cubic yards.

Q. Figured at how much per yard?

A. At a dollar per yard, a total value of $621.00.

Q. Now, what is the cost of excavation, I mean the depth of excavation of the character required for such foundations in the City of New York, including the carting and dumping?

A. The actual amount of excavation in the two above referred to buildings, is 6,740 cubic yards, or over ten times as much as that allowed by Mr. Edgerton in his testimony.

Q. And at what price do you figure deep excavation including carting and dumping in the City of New York?

A. Excavation in ground of this character, where there is a large quantity of water to be encountered, is exceedingly slow, and is worth two dollars a cubic yard.

6579 Q. Therefore, the total cost of excavation for these two buildings, would equal how much as compared with Mr. Edgerton's estimate of $621?

A. $13,480.

Q. In that estimate has any allowance been made for sheet piling and pumping?

A. None whatever, but it should have been made, such item is absolutely indispensable in excavating in ground of that character.

Q. Is sheet piling and pumping included in that amount of $13,480?

A. No, sir, that is an extra item. That $13,480 is for the excavation alone.

Q. Now, what would be the total value of the sheet piling and pumping in addition to the $13,480?

A. The sheet piling for these two buildings cost $3,360, whereas the item of pumping cost $5,750. That last item of course includes boiler, fuel, the water, the salaries of the engineers and coal, etc.

Q. Well, then, the expenditure, if I aggregate these correctly for these foundations should be $22,620 as against Mr. Edgerton's allowance of $620?

A. Yes.

Q. So there is a difference of $22,000 about?

A. Yes.

Q. Now, have any allowances been made by Mr. Edgerton for the solid concrete and brick foundations which are under the water gas apparatus as shown in the sketch of the foundations which you have prepared?

A. There has not been.

Q. From what were these sketches drawn; what kind of drawings are these sketches which you have prepared?

A. From the drawings in existence at the works, which I understand were used in building these foundations; that is the old generator house showed piles and solid brick foundations, which
6580 formed the foundation of the original benches, the retort benches. The concrete foundation I think under the water gas apparatus was not piled.

Q. Now, generally speaking, without going into great detail, have you compared Mr. Edgerton's estimates upon various factors of cost with the actual cost of construction as known to you in New York for these particular factors?

Mr. BURR: I think that was all gone into.

Mr. MATHEWSON: It is simply a general question which is introductory to something else. It could not have been gone into, any comparison, because he has not been on the stand since Mr. Edgerton was on the stand.

Mr. BURR: He gave his general reasons.

Mr. MATHEWSON: This is something different.

The WITNESS: I have.

Q. Now, suppose you take one building and make some comparisons, what building would you select?

A. For instance, the building which we have only completed a short while ago at the new plant of the Astoria works, the inclined retort house.

Q. How did you find that the unit of cost which you have employed in computing the value of buildings compares with the actual unit of cost of that building?

A. The cost of that building?

Q. Is your unit of cost more or less than the actual unit of cost in that case?

A. It requires a little explanation.

Q. Well.

A. In this instance the building is higher, and therefore the relative cost of the foundation floor area as well as the roof construction would be the same, also the volume is increased on ac-
6581 count of greater heights, therefore the unit of value of such building should be considerably less.

Q. On your schedule?

A. Yes, the unit of value computed as it is is very little less.

Q. Now, take the 111th street exhauster house to which he referred, Mr. Edgerton, in his estimate has put brick at $14 per thousand laid What is the actual cost?

A. $25 a thousand.

Q. He has stated stone footings, estimated at 90 cents per cubic foot. What is the actual cost per cubic foot?

A. The actual cost is $1.40 per cubic foot.

Q. He has estimated flooring at $40 per thousand feet board measure. What have you to say as to that?

A. The cost of the material alone is $42 without any labor attached.

Q. And what would be the total cost per thousand feet including labor?

A. If it was double flooring the cost would be $82 per thousand feet laid.

Q. What is the cost of labor per thousand feet for single flooring and double flooring?

A. About $20 per thousand feet board measure.

Q. Single or double?

A. Single.

Q. And $40 for double?

A. Yes.

Q. He has estimated yellow pine girders at $40 per thousand feet board measure. What do you say as to that?

A. The actual cost of the material would hardly be covered by that estimate without any labor. I have quotations for the same kind of lumber at present at $45 per thousand feet.

Q. Now, he has inserted steel checkered floor plates at 5 cents a pound, does that cover the cost of such floor plates?

A. The material cost alone at present is 3½ cents per pound, and the cost of labor to lay the plates including the fitting and cutting is 1¾ cents per pound, making a total actual cost without
6582 any profit to the contractor of 5¼ cents per pound.

Q. That includes all waste that may arise in cutting?

A. Any waste in fitting and cutting.

Q. Did you find that Mr. Edgerton has allowed anything for excavation for this building?

A. No, I believe that Mr. Edgerton omitted the entire item of excavation for this building.

By Mr. KIRBY:

Q. What building are you now referring to?

Mr. MATHEWSON: This same building, 111th Street.

By Mr. MATHEWSON:

Q. Now in the same estimates Mr. Edgerton has allowed cost of 50 cents per cubic yard in the instance of the 132nd Street governor and boiler house and in another instance he has applied the figure of $1.00 per cubic yard. What is the average cost for deep excavation of this character, as required in such buildings?

A. Not less than $1.25 including the cost of disposing of the earth, the dumping privileges, etc.

Q. Do you find in any of Mr. Edgerton's estimates that he has made an allowance for the contractor's expenses, for his office force, draftsmen, scaffolding, shop, wear and tear on tools and appliances, etc.?

A. He has not.

Q. What percentage of the value of the cost of work of this kind in your experience in this character of building should be allowed for these items?

A. It would not come less than 10% on the actual cost of the work.

Q. Now, Dr. Marks in substantially all cases has assumed your

cost of apparatuses and holders to be correct, but in some few
6583 instances he differs with you, and with Mr. Edgerton he differs in many instances. Now, taking up Mr. Edgerton's statement as to holders, do you find that he has submitted any detailed estimates as to the cost of holders including guide frames?

A. He has not.

Q. At page 5347 he states that one-third of the cost of the holder is an ample allowance for the cost of the guide frame. What have you to say as to that proposition, Mr. Mayer?

A. I can only say that such estimate is absolutely erroneous. Some 25 to 30 years ago it was the intention to have the various gas holders uniform in their construction, and at that time they endeavored to use a column in the guide frame for every ten feet in diameter of the holder, but such were only endeavors and could never be carried out with any kind of certainty. For instance a holder 60 feet in diameter would have 6 columns, one 70 feet would have 7 columns, one 80 feet 8 columns, etc. Now there were no holders built at that time with an uneven number of columns in the guide frame. Why that was so I cannot explain, but nevertheless it was the fact, and in the very instance of the Consolidated works a glaring example of this kind exists which will prove positively that Mr. Edgerton's assumption that the guide frame of the holder amounts to one-third the cost of the holder is impossible. For instance, the four holders at the 21st Street station of 400,000 feet capacity are constructed in three lifts with an outer section of 88 feet in diameter. These holders have 16 cast iron columns in the guide frame. At the same station there are six holders each of 345,500 cubic feet capacity constructed in two lifts, the outer
6584 section of these holders is 95 feet in diameter. These holders have guide frames consisting of only eight cast iron columns.

Q. The diameter is greater, but the number of columns is only half as many?

A. The diameter is greater, but the number of columns is only half as many. The two holders of 250,000 cubic feet capacity at the same station are constructed in two lifts with 84 feet in diameter, and the guide frame only contains six columns, so that it will be seen that the maximum variation in the diameters of the different holders as between 84 and 95 is only 11 feet, whereas the variation in the number of columns amounts to over 100 per cent., and such difference excludes all possibility of applying a general rule which assumes that the cost of the guide frame to the holder is one-third of the cost of the holder itself.

Q. Now, if the valuation of the various holders (including guide frames) by Mr. Edgerton is based on the assumption of such proportionate values between the guide frames and the holders, would that be sufficient to account for the entire difference between Mr. Edgerton's and your own valuation as to the value of the holders?

A. No, I think it would account for a great deal more than that.

Q. And is the same true of the other cases in which differences of values exist where such a general rule has been applied by Mr. Edgerton?

A. It is so.

Q. Now, what were your values on holders and apparatuses, with which Mr. Edgerton disagrees, based on?

A. My valuations for holders and apparatuses are all based on actual detailed estimates. Of course it was impossible for me to make any such detailed estimates in the time at my disposal,
6585 during my examination of the plants, but as I had access to all the detailed estimates of the firm of Bartlett, Hayward & Co., with which I was formerly connected, and which estimates are an accumulation of over 25 years, made partly by myself or under my personal direction, I was thoroughly familiar with applying them to the apparatuses in question at the works of the Consolidated Gas Company.

Q. Now, in giving your estimates of the value of holders, for instance, did you ever make or did you have before you detailed estimates in each case showing the actual cost of such holders or of holders of the same character which you could change as might be required for existing conditions of material or labor?

A. Yes, I had the actual detailed estimates of weight, to which I applied the prices under New York conditions as they existed last summer.

Q. Now, do you mean merely estimated weights or actual shipping weights?

A. I had both.

Q. W-ere Bartlett, Hayward Co., for instance, installed any part of the holders or installed a holder of the same kind, did they keep a record of the actual weight of the holder?

A. Absolutely a record of the actual cost.

Q. Were holders ever erected by you or under your personal supervision?

A. They were all constructed under my personal supervision.

Q. And did you have access to all this in making up your estimates?

A. I did.

Mr. KIRBY: I submit, Mr. Master, this is not proper rebuttal. I object to this line of questioning to these details upon which Mr. Mayer based his conclusion as set down in his direct testimony
6586 unless an opportunity be given to Mr. Edgerton to go upon the stand and show his details.

Mr. MATHEWSON: I don't propose to put in evidence these details as to each holder and piece of apparatus; I am merely now calling the attention of the court to the method by which this witness reached his estimate to rebut the defendant's assumption that his estimates are incorrect.

Mr. KIRBY: If it were to be brought out in this case it should have been brought out on his direct-examination, it seems to me.

Mr. BURR: It seems to me that it is quite apparent that this testimony should have been given in the direct testimony and if it is intended as a statement now it seems there was no information as to the sizes, the actual weights or the cost of holders, it was not furnished to me, and it should have been, in justice to us, we should

have had the foundation, and the basis of his figures and in the valuation of these buildings, then we would have had a proper opportunity to have criticized or gone in detail into the merits of these figures.

The MASTER: Why wasn't it done. Why didn't you bring that out on cross-examination? It might be a serious question as to whether if Mr. Mathewson had chosen to bring out these facts on the direct-examination of his witness, his own expert whether you might not have objected to it on the ground that the reasons for his opinion as an expert are not properly brought out as a part of his direct-examination. Now, if Mr. Mathewson didn't bring that out on direct and you didn't bring that out on your cross, and it
6587 comes up that the witness' method of valuation is not attacked by your witnesses why can't he show generally the care which he took, or the methods he followed in arriving at his results. I quite agree with you that it is not at all proper to put in evidence any of these materials that he used, these detail drawings, etc., these specifications, etc., I don't understand that Mr. Mathewson is offering them.

Mr. BURR: I understand the only object in referring to them is to confirm the correctness of the valuations he gave before, since his last appearance here. He has testified as to the values he has given, that he made detailed estimates, consulted drawings which were made at the time in some cases, all of which seems to me is not proper rebuttal, unless we have the opportunity to go into it very fully.

Mr. KIRBY: His method has not been attacked, his conclusions have not been attacked.

The MASTER: I will allow this line of testimony in so far as it is broad and general, but not in detail. I think you are right about that. It is a very close question anyway as to what is proper.

Mr. KIRBY: I except.

Mr. BURR: I except.

Q. What proportion of the detailed apparatus would you say Mr. Mayer, in your valuation consists of apparatus upon which you computed the weights, and respecting which you had exact weights or procured exact weights one way or another as distinguished
6588 from the stock items like boilers and things of that sort which are built by special builders and not particularly by Bartlett, Hayward & Company?

A. Well, all apparatus at the plant as compared with the other items for which I was compelled to obtain prices from the manufacturer which manufactured such articles, would cover probably not less than 96 to 97 per cent. of the cost of the apparatus or plant.

Q. And where Mr. Edgerton differs from your weights are your weights of apparatus estimated or assumed, or are they the actual result of your knowledge and your experience?

A. The actual result of knowledge based upon my own experience.

Q. As to the three or four per cent. consisting of boilers, etc., have you bought and installed boilers from time to time?

A. Many of them.

Q. In your estimates which have been attacked by Mr. Edgerton, in regard to these items, did you in addition to your own knowledge make any inquiry at the time of the manufacturers as to the prices at which the boilers could be installed?

A. I so stated that in my testimony.

Q. As an illustration, Mr. Mayer, have you here a sheet showing the detail in which it is necessary to go, and into which Mr. Edgerton did not go, to make an exact estimate of the cost of a gas holder?

A. I have.

Q. This estimate is a hypothetical holder of the type of the 132nd Street holder, five million cubic feet——

A. It is of the same dimensions, but slightly less in pressure I think.

Q. Now, does this detail which I hold in my hand show the detail into which it is necessary to go to give an exact estimate of the holder?

A. Yes.

6589 Q. In making an estimate of the value of these different apparatuses how do you proceed as compared to the way in which you would proceed to make a bid for furnishing such apparatuses?

A. Identically in the same manner.

Mr. MATHEWSON: I offer this paper in evidence as an illustration of the detail into which the witness says it is necessary to go to get the actual value of a holder. This is not an estimate of the 132nd Street holder, but illustrative of what it is necessary to do to get the exact value of the holder, but Mr. Edgerton stated on the stand that he did not do that.

Mr. KIRBY: What Mr. Edgerton stated on the stand is in the testimony.

Mr. BURR: Isn't this merely a bill of material?

Mr. MATHEWSON: This is an estimate in detail of the weights to which in figures the price for material and cost of labor have to be applied to suit conditions at the time each piece of work is installed, the actual price.

Mr. BURR: This simply shows the material used in the holder?

A. Yes. Shows the weights of material and each class of material.

By the MASTER:

Q. Is there anything in this paper which differentiates the cost of the guide frame from the cost of the holder?

A. Yes.

Q. Can you pick it out?

A. Yes, sir (witness exhibits same to Master).

6590 By Mr. MATHEWSON:

Q. I ask you at this point whether it is possible to make an exact estimate of the cost of a holder or other piece of apparatus constituting these other 96% to which you have referred without going

into a detailed estimate of the same general character as you have presented here and which you have shown to the Master.

A. I consider it absolutely impossible. All the factors have to be based on the weight, and such factors cannot be determined unless the weight is known.

By Mr. BURR:

Q. Where did you get the weights which appear in this hypothetical holder?

A. From the former estimates for a holder of those exact dimensions.

Q. That was not open to Mr. Edgerton for his inspection, was it?

A. Oh, no.

Mr. MATHEWSON: It would have been if you had cross-examined him on the subject and brought it out.

Q. Have you that estimate now?

A. Here it is.

Mr. BURR: If you remember, Mr. Master, you will recall that we called on the other side for the particulars of the construction of these holders and never could get them. Now, it is not fair that at this last moment that they should present here an estimate of the cost of the construction of these holders without giving us a chance to go into the whole subject.

Mr. MATHEWSON: You mistake, Mr. Burr, I am not offering any such thing. Unless I am mistaken your witness testified that
6591 he didn't make such detailed estimate of such apparatus. Mr. Mayer testified it is not possible except from such detailed estimate to make an estimate of the values. Then he says what sort of an estimate it is necessary to make. It is perfectly obvious. Your witnesses never could go into the details in the time at their disposal. Even if they attempted to they could not. I am not not going to put in the estimates of these various holders.

Mr. KIRBY: Such details as our witnesses went into have not been spread upon the record. They should be spread upon the record, as I stated before. There are reams of it.

The MASTER: Don't discuss it. If you object I will rule upon it.

Mr. BURR: I object to that as incompetent and immaterial and not proper rebuttal.

The MASTER: I don't see that it is proper rebuttal, except in so far that Mr. Edgerton may have given general testimony about the methods to be followed in getting at the cost of holders; and I don't see any such general testimony here except in that single case of the cost of the guide frames, and that, I understand, you have already covered. This table which you have here covers a great deal more than that guide frame question. Mr. Edgerton did say here that one-third of the cost of the sheel was considered an ample allowance for the guide frame. That of course is the sort of thing you are entitled to meet on rebuttal; but I think most of this goes further than that. It simply goes to show that the methods adopted by your

witnesses was better and more accurate than the method
6592 adopted by the other witnesses.

Mr. MATHEWSON: Where our method is criticised am I not entitled to meet such criticism?

The MASTER: I don't find that he specifically attacked Mr. Mayer's method.

By Mr. MATHEWSON:

Q. Have you examined Mr. Mayer's testimony as to the manner in which he found the valuation?

A. Yes.

Mr. MATHEWSON: Then may I have this marked in for identification, and then tomorrow morning I will renew the offer. I think I can show the Master then the testimony which rendered it admissible.

The MASTER: I think so much of that as goes into this question of allowance for guide frame is proper, but there is so much else in it, I have very serious doubt about it.

Marked for identification, "Complainant's Exhibit 374, January 30, 1907, E. C. Jr., steno."

Mr. BURR: I say in reference to the testimony of Dr. Marks in connection with holders he has practically accepted the figures of Mr. Mayer as being correct, he differs with him, however, in the depreciation principal.

Mr. MATHEWSON: In reference to the detailed estimate of a holder of the character of the 132nd Street holder, such detail figuring would consume a good many pages according to the exhibit "For Identification 374." I will withdraw that last question, on which the main question is based. It may be rendered unnecessary.

6593 Q. My question, Mr. Mayer is, whether in reference to other items of apparatus, excluding the stock items like boilers, etc., you consider it necessary to get an exact estimate, to go into a like detailed computation?

A. It is even more so with the other apparatus than in the instance of holders.

Q. Mr. Edgerton spoke of double-riveted covers for purifiers as something unique or different. What is the fact?

A. Well, all large purifier covers must necessarily be double-riveted on account of the interior strain.

Q. How about the New Astoria?

A. Are all double-riveted, and could not be otherwise.

Q. In the case of smaller holders do you consider it better or poorer construction?

A. It is better, but not necessary.

Q. Mr. Edgerton spoke of the 14th Street as a dilapidated old plant. You examined the plant, did you not?

A. I did.

Q. What have you to say as to that suggestion of Mr. Edgerton's?

A. I find that the plant has been operated and is being operated

to the full capacity and at economical rates, therefore it could not be dilapidated.

Q. Now, Mr. Logan in his testimony stated that in many cases his values were higher than yours, and in other cases substantially the same, and in some cases it was below your valuation, do you find his difference was due to the difference in the weights which were assumed for the apparatuses or due to other reasons?

A. That is the only reason I can assume, that his weights differ from mine.

Q. Well, you observed in his testimony that he was assuming the weights which he employed in such cases?

A. Yes, I remember that.

6594 Q. And assuming the weights that you actually found, and his unit figures, how would his values then compare with yours?

A. Would be the same about, excepting——

Q. Now, without going into details as to each structure do you find that Mr. Edgerton in his estimates generally as to the value of similar factors of cost to those to which I have called your attention, I mean by similar factors the cost of board, the cost of excavation, the cost of brick laying, etc.—in other words has he made the same errors and omissions generally throughout, or are those individual instances?

A. No, the same errors and omissions are made throughout, but they vary in some instances. They are not always the same in each estimate.

Q. Do you consider these errors fundamental, or are they merely of slight account?

A. No, they are errors which would absolutely give a wrong impression concerning the value of such buildings and construction.

Q. What then do you say general-y concerning his estimates of value of buildings, and apparatuses wherever they fall below your figures?

A. I can only say that these estimates have not been made upon any knowledge of expenses and conditions as they exist in New York, and therefore I cannot accept them as being fair valuations.

Q. As to pipe connections Mr. Edgerton suggested that a new plant could be constructed with fewer pipe connections than those called for in your valuations. Even if you constructed a plant with the connection which Mr. Edgerton suggested, could in your judgment, the connections for such plants as the Consolidated possesses be constructed on his theories on the figures he gives?

A. No, sir, or nothing like it.

Q. Is it a fact that modern plants as they are constructed contain single pipe system connections?

6595 A. All modern plants contain at least a double system, and in some instances like in the New Astoria we have four lines of pipes from the retort house to the condenser house to act as condensing mains to assist atmospheric condensation.

Q. Between the retort house and the condenser house?

A. Yes.

Q. Now, if old mains had been maintained in the plants of the Consolidated Gas Company, as the connections had additional lines laid, would that indicate any antiquated or out-of-date or improper construction?

A. I doubt that additions to existing plants could be made when the plant is to be kept in operation without simply adding to the existing mains and making the existing mains a part of the reconstructed plant.

Q. Now, so far as you have observed, what about the connections, were they in use or not?

A. As far as I was able to ascertain and as far as I was able to see they were all in use.

Q. Where you have several lines of connections would it in your judgment be wise or economical to throw out these smaller connections in order to put in new and larger ones?

Mr. BURR: I object to that. I think it is opening the door——

Mr. MATHEWSON: Mr. Edgerton criticized the connections and cut them from 21,000 down to 12,000 each.

The MASTER: Objection overruled.

Mr. BURR: I except.

Mr. KIRBY: I except.

The WITNESS: No, it would not be wise for the reason that you would be compelled to shut down the plant.

6596 Q. What would you do, add additional connections, and keep what you had?

A. There is no other way of adding to a plant that has to be kept in operation, as I have said.

Q. In reference to these items of holders, etc., which you have valued how many of them did you see personally?

A. I saw them all.

Q. Now, as to your estimate of the cost of labor in the city of New York did you act on hearsay, or from actual experience and knowledge.

Mr. BURR: One moment. I think this is direct-examination. You have examined him and re-examined him as to the basis on which he fixed the cost of labor.

Mr. MATHEWSON: Mr. Edgerton has testified he got information from these sources and other sources and asked Tom, Dick and Harry, and I ask this witness whether his conclusion is based on estimate and hearsay or else on experience and knowledge.

The MASTER: I don't think it is rebuttal.

Q. In addition to your examination of the plant of the Consolidated at this time for the purpose of an appraisal, have you had any knowledge of the facts?

Mr. BURR: I object to that as already testified to.

The MASTER: Objection sustained.

Mr. MATHEWSON: I except.

Q. Do you find that even as it was and at the time then at your

disposal you included all the buildings and apparatus of the company——

6597 Mr. KIRBY: I object to that.

Q. ——in your estimate of valuation.

Mr. BURR: Same objection.

Objection overruled. Exception.

The WITNESS: I did, with the exception of two buildings, one was the so-called Avenue A shop at the 21st Street works, and the other one was the 66th Street shop.

Mr. MATHEWSON: I am not going to ask this witness these valuations, but to indicate the fact merely that in the estimate he did not include them.

Q. Now, Mr. Mayer, the witnesses for the defence in some instances referred to various pieces of apparatus, as for instance scrubbers, as scrubbers are used, ordinarily used, is it a fact that all scrubbers are made by the same concern or in the same way when they deal with the same capacity?

A. No, not at all, it depends entirely upon the different construction of the various firms.

Q. Is it possible taking any piece of apparatus of that character to compute its value without knowing the exact weight or measuring the exact weight?

A. No, as I stated before, you cannot.

—. Now, you have given a certain valuation of the plant new as something over sixteen million dollars, and you have given the valuation of a plant taking out your depreciation *in toto* at something over $15,500,000, as I recollect——

A. It is something like that.

Q. Upon what theory did you compute the depreciation?

Mr. BURR: He has already testified as to that.

6598 Mr. MATHEWSON: Wait a minute, let us see whether he has or not.

Mr. KIRBY: If he has not, he cannot do so now.

Mr. BURR: Point out just exactly where he did testify to that.

Mr. MATHEWSON: Have you any objection to it?

Mr. KIRBY: I have.

Mr. BURR: I object to it on the ground that it has already been testified to, the method of arriving at his depreciation, and the method by which he arrived at the cost of engineering.

Q. Referring to the depreciation computations of Dr. Marks and Mr. Edgerton and your knowledge of the plant, I will ask you whether or not in your judgment for the difference between your valuations given to-day, to which I have referred, and the valuations as depreciated, to which I have referred, the plants could be put in condition as good as new?

A. In my valuation, you mean?

Q. Yes.

A. Yes, they can.

Q. In your experience is it easy to judge the depreciation of a building from appearances, simply outside appearances?

A. Unless such judgment of depreciation is performed by a man experienced in the detail of the estimated cost of repairs I should say that he would be unable to judge depreciation by appearances.

Q. Isn't it a fact that frequently a very small expenditure for pointing up and other items relating to outside appearance makes a building as good as new?

A. It is very often the fact.

Q. Have you ever estimated for repairs and alterations in bringing apparatus up to efficient working order?

6599 Mr. BURR: I make the same objection. It is incompetent, immaterial and not rebuttal.

The MASTER: That is good, Mr. Mathewson.

Mr MATHEWSON: It seems to me that is proper. He said that the difference between his view and depreciated value would make the plant as good as new.

The MASTER: The question is objected to and I think here it is clearly objectionable. I will allow you to ask him merely as to Dr. Marks and Mr. Edgerton's method of arriving at values, and let him point out their defects.

Q. How long have you been estimating for repairs and alterations in gas apparatuses?

Mr. KIRBY: I object to that.

Mr. MATHEWSON: Why?

Mr. KIRBY: If it was not brought out before, it should not be brought out now.

The MASTER: Objection sustained.

Mr. MATHEWSON: I ask for the answer.

A. Over 25 years.

Q. Now, did you observe that Mr. Edgerton's depreciation for both the old and new U. G. I. stations, which had been many years in operation as 10%?

A. I did.

Q. What do you observe for his depreciation at 132nd Street as compared with other holders?

A. Where the holder is entirely new, as I remember it the depre-
6600 ciation is marked at 5%. Then there was a holder at I think 63rd Street which I constructed in 1889 or 1888, I have forgotten which, at any rate it is seventeen or eighteen years old, and the depreciation is the same 5%.

Q. Now, did you hear the testimony of Mr. Edgerton and Mr. Marks, or have you read it as to the time which was devoted by them to the examination of these plants?

A. I have.

Q. I will ask you whether in your judgment it is possible in an examination of that length to go into the details of construction or make such an examination as to give even an approximately exact cost of such a plant?

A. I know that I should not be able myself within that time to give even a rough guess, it would be absolutely impossible.

Q. Have you made a computation as to the number of hours that you and your assistants put in in examining these plants for the purpose of your testimony and estimate originally?

Mr. BURR: I object to that as already in the testimony.

A. I have.

Q. How many?

A. My own time and that which my assistants actually spent at the various works was 3780 hours.

Q. And were your assistants men familiar or unfamiliar with gas apparatuses?

A. They were all draughtsmen and engineers, picked for that particular purpose, they had been working with me for years and they were familiar with all the details of construction. Without such men I could not have accomplished it even in that time.

Q. Could you have accomplished in that time with these men that result, if you had not had the benefit of the estimates and drawings which had been placed at your disposal?

6601 A. It would have been impossible even in that time It could not have been done within 12 months with more men if I had not had these estimates and drawings at my disposal.

Q. Did you compute from the testimony the number of hours occupied by Mr. Edgerton and Dr. Marks?

A. I have.

Q. Well, how many hours, about?

A. Dr. Marks has been 84 hours at the works and Mr. Edgerton 50 hours.

Mr. MATHEWSON: That is all except that I will call the Master's attention to-morrow to this Exhibit 374 for identification. I reserve that right.

Cross-examination by Mr. KIRBY:

Q. What did you take into account, Mr. Mayer, when you computed the numbers of hours that Mr. Edgerton put in in making his appraisal of these plants?

A. His testimony as he gave it when I was sitting over there.

Q. The times spent at the plant?

A. Yes.

Q. Anything else?

A. No. You could not examine apparatus any other place except at the plant.

Q. Did you consider the time of any one who was assisting him?

A. Only his own time.

Q. In your total of 3,780 hours do you include anybody's time but your own?

A. That of my assistants.

Q. You do not include Mr. Edgerton's assistants?

A. I don't know that he had any.

Q. Or of Dr. Marks' assistants?

A. I didn't know that he had any.

Q. I presume in figuring depreciation the conditions as
6602 well as the age of the apparatuses has much to do with the factor employed, does it not?

A. The condition has, the age has not——

Q. Well, it might well be a new U. G. I. apparatus of 1906 and an old one of 1884 would have the same depreciation factor, would it not?

A. No, it would not.

Q. If age has nothing to do with the appearance, or rather conditions as observed, how do you come to the conclusion that there might not be the same depreciation?

A. Because in every instance the apparatuses are kept up to their full working and operating condition.

Q. Then you assume that——

A. I know it, because if it was not the case it could not be operated.

Q. You assume it from your knowledge of these apparatuses?

A. Yes, I know from my observations of these apparatuses.

Q. All these U. G. I. apparatuses are in use from day to day?

A. Yes, sir.

Q. And in use the fire brick and such portions as are subject to heat are depreciated, are they not?

A. Yes.

Q. And being new lined to-day they would be more valuable than a week from to-day, would they not?

A. Well, there would probably be a slight deterioration, yes, which would be wiped out the next time they were repaired.

Q. But needing repair at any time before those repairs are made they have less values than at a period immediately after the repairs have been made, have they not?

A. At that immediate moment, yes.

Q. Such is also true of holders, is it not? Do holders ever need repairs?

A. Very seldom, only such holders as are defective in
6603 construction. I don't know that we ever repaired a holder we constructed ourselves.

Q. Do they last forever?

A. I don't know how long they last.

Q. Isn't it a fact that sometimes the tops rust out or become so defective that new plates have to be put in, or repairs made in some way?

A. Not if the gas is properly purified or the painting on the outside properly taken care of.

Q. Are all holders properly painted, and is all gas properly purified so that it will not in any way affect the material of which the holder is made?

A. It is for the Consolidated Gas Company in New York.

Q Have you examined the holders at 65th Street?

A. Yes, sir.

Q. Are you not aware that on the side of these holders paint for a space of yards or more at various places has come off?

A. Not at the time I examined it, no.

Q. Paint does peel off from holders from time to time, does it not?

A. When there is bad paint used or bad water in the tank, yes, sir.

Q. Did you consider that the holders at 14th Street at the time you examined them were properly painted?

A. They were.

Q. Needed no painting of any kind?

A. No.

Q. Where did you get your information from in reference to Mr. Edgerton assuming that the cost of the frame was one-third that of the holder?

A. From his testimony.

Q. Did you notice how many holders out of all these he proceeded to use such an estimate for?

A. How many what?

Q. How many holders out of all these did he proceed to use such an estimate for?

A. He didn't give any detailed estimate of the holders,
6604 therefore I assume he assumed the same estimate for all of them.

Q. Now, I refer you to Mr. Edgerton's testimony at pages 5346 and 5347, to the question at the top of page 5347: "Q. Did you measure those guide frames and compute their value? A. I did. Q. And computed their weight? A. Yes, sir. Q. Now let us have the details of that computation? A. Haven't anything more here than 164,700 at four cents, cast iron girders 16,150 pounds and guide rails 960 pounds."

Q. Did you read that part of Mr. Edgerton's testimony?

A. I did.

Q. And did you consider that in estimating the value of the guide frame, did you consider that one-third?

A. No, I considered nothing except that he did not give enough information——

Q. I understand you to say that Mr. Edgerton in all expenses going to his cost as to all guide frames of holders estimated that the guide frame was a third of the holders.

A. I assume he did, because he did not——

Q. That was because of the fact that on examination he did not go into the details used in giving the valuation that you assumed he took one-third of the cost of the holders as the cost of the guide frames?

A. No, because he could not have measured his guide frame any other way.

Q. Do you know how many times Mr. Edgerton went to these different stations and examined these guide frames?

A. It would take him not less than three days with one man to measure each guide frame in one holder.

Q. Would Mr. Edgerton have to measure each member of that guide frame?

A. He would.

Q. He could not take one section, measure the members
6605 of that section and assume the rest were the same?

A. Yes, if he went on that section of the holder from the top to the bottom, but they vary.

Q. But if he measured the sizes from top to bottom wouldn't it be possible for him to come to a conclusion as to the value of such guide frames?

A. It would not have been possible for him to have measured them in the time at his disposal.

Q. Then your answers depend upon what you consider impossible for Mr. Edgerton to have done in the time at his disposal, in the way of making measurements which would have enabled him to make an appraisal?

A. No assumption about it. I know from my own experience he couldn't have done it.

Q. Assume that Mr. Edgerton measured the lowest of the three members of this guide frame, for the sake of getting the weight of frame, and gave them the benefit of the doubt and used that weight to the top, would he be giving a value that would be too great or too small, or a weight which would be too great or too small?

A. Well, if he assumed the bottom member of the guide frame to constitute the entire guide frame and provided his calculations were correct and he would not increase the error 12 or 24 or 16 times or as many panels as there are in the guide frame, but if he should make an error in that instance he would simply have that error 24 times, if there were 24 panels.

Q. Now, the error would be in the direction of making the guide frame too heavy?

A. Not at all, it might be just in the other direction.

Q. Aren't they heavier as you come near the ground?

A. If his estimate is correct——

Q. Then your whole testimony here is that Mr. Edgerton in the time at his disposal could not make an examination of the plant and make measurements, but if he did make measurements they were not correct measurements?

A. I know they were not correct as far as he did give them.

6606 Q. From such weights as you have been able to get from the testimony?

A. Yes, they are not correct.

Q. Have you looked at his weight of the guide frame for the 65th Street——

A. I don't recall it just now. I was attempting to give the testimony——

Q. Having done so at that time did you not come to the conclusion that the weight which he gave there was enough higher than that which the guide frame actually is——

A. I cannot recall that until I go over the testimony.

Q. Now, in your measurement of the dimensions of the members

of this guide frame did you, as Mr. Edgerton did, take callipers and rules and micrometers and use such precautions to see that you got the right and proper dimensions of the guide frame?

A. If I had done that I would have made the same errors that Mr. Edgerton made. I have built most of these and know——

Q. Then it is impossible to go to a guide frame and make measurements and find out the size of the material that enters therein?

A. No, it is not impossible to do it, but you have to climb up in the air about 250 feet to do it, and it takes considerable time to do it.

Q. Have you consulted the employees of the Consolidated Gas Company to find out whether Mr. Edgerton did not climb up some 250 feet in the air to make these measurements?

A. It was not necessary to do so. I know he did not.

Q. Do you know whether he did or not?

A. No.

Q. Do you know how many times it is necessary to climb up 250 feet to make these measurements?

A. No. But no man can do it in fifty hours.

Adjourned at 5.45 P. M., to Thursday, January 31st at 11 A. M.

Last Exhibits:

Complainant's, 374.
Other exhibits same as last hearing.

6607 Circuit Court of the United States, Southern District of New York.

CONSOLIDATED GAS COMPANY OF NEW YORK, Complainant,
vs.
JULIUS M. MAYER, as Attorney General of the State of New York; WILLIAM TRAVERS JEROME, as District Attorney of New York County; FREDERICK E. GUNNISON, JOHN C. DAVIES and LUCIAN L. SHEDDEN, Constituting the New York State Commission of Gas and Electricity, and THE CITY OF NEW YORK, Defendants.

Before Arthur H. Masten, Special Master.

NEW YORK, *January* 31, 1907—11.00 a. m.

Met pursuant to adjournment.
Present: The Master, Mr. Mathewson, Mr. Kirby, Mr. Burr.

6608 Mr. BURR: I think I might occupy some time in straightening out the matter of the real estate, which has got to be done before we close this case or else I will withdraw the stipulation which I entered into with you.

Mr. MATHEWSON: What do you mean? I don't know what you are talking about.

Mr. BURR: I will tell you. That is the reason I will avail myself of this lull to tell you.

Mr. MATHEWSON: I don't know of any stipulation that I have violated, or that I am prepared to cancel.

Mr. BURR: Our time is becoming very limited and I cannot afford to lose a moment. You remember some time ago, Mr. Master, I called your attention to the stipulation which Mr. Mathewson evidently intended to enter into that was made waiving the technical objection to the grants and the maps, but it appears in the record it simply refers to the grants. When we afterwards sought to have that corrected by including the stipulation as to maps, certain conditions were exacted from us with which we cannot comply. Now, I will call your attention to exactly what happened in that regard. On page 4277 of the record, on the introduction of City's Exhibit 76, Mr. Mathewson used the following language: "I object to it as not proven." This objection was overruled and exceptions taken (p. 4278). Similar objections were made to Exhibits 77, 78, 79 and 80. On page 4282, Mr. Master, on this subject the following discussion took place:

"Mr. MATHEWSON: There is no question but what these water rights were substantially vested in the Consolidated Gas Company."

6609 Mr. MATHEWSON: That word "substantially" should be subsequently.

Mr. BURR: Yes, subsequently. I won't read all. That is on page 4284, but it is manifest that the intention was to have this stipulation cover objections made to the maps as well as to the grants. It seems to me we are entitled to this correction and in the event of its refusal we desire to withdraw our stipulation and require the gas company to prove the *mean* conveyances.

Mr. MATHEWSON: What are you referring to?

Mr. BURR: Simply that without the word "maps" here we would have to prove all these maps. We made a concession with regard to them and in consideration of that you consented we should not be put to the trouble of proving the maps and the grants, but the word "maps" was left out.

Mr. MATHEWSON: I remember generally that records were presented and that there was objection to them as not proven, as to execution or something of that sort, and that we withdrew the objection.

Mr. BURR: We entered into a stipulation with you.

Mr. MATHEWSON: Well, whatever it was it appears on the record.

Mr. BURR: It was an inadvertence that the word "maps" was left out of our stipulation.

The MASTER: Well, the maps were admitted, Mr. Burr.

Mr. MATHEWSON: Of course, any concession we made and any concession you made in that regard was for the purpose of this suit only.

Mr. BURR: If I recall, some days ago it was said "if you submit a stipulation it will be all right," and I submitted one but there seems to be come hitch. I wish you would take it up yourself.

6610 The MASTER: The maps were admitted and it appears that the man was here ready to prove them and I admitted them

understanding that he was the proper custodian of the maps and the man would be called later, so as not to interrupt the witness on the stand at that time. Mr. Mathewson apparently having insisted on having him called, but he was not called, and I should think your rights are protected.

Mr. BURR: I do no- say Mr. Mathewson is changing any stipulation that he meant to enter into at the time, but in the office of the attorneys for the complainant they evidently do not understand it as well as Mr. Mathewson does.

Mr. MATHEWSON: I assume some stipulation as to inserting the word "maps" between Mr. Burr's office and the office of Sherman & Sterling has been taken up, with which I am not familiar.

The MASTER: You will find that the record shows that Mr. Hatton was going away. Mr. Hatton, who was the man who brought the maps, was going to prove the custody of them and the office they came from and he was relieved from attendance. That apparently is a waiver of any objection.

Mr. BURR: Well, I didn't know. Because of the attitude of Sherman & Sterling I assumed that there was some legal objection.

I think it is proper to note that we have not as yet received the transcript of the testimony taken yesterday, and it is by a great effort that we are able to proceed at all to cross-examination upon the great mass of rebuttal testimony which has been put in so quickly.

Mr. KIRBY: Not only that, but yesterday's exhibits, num-
6611 bers 370, 371, 372 and 373 have not as yet been received although they were promised.

Mr. MATHEWSON: The delay is not attributable to us. I gave them to Mr. Carroll last night and he was to deliver them by half past nine this morning.

Mr. KIRBY: We are not blaming anybody; but simply stating the fact.

FREDERICK MAYER resumes the stand and further testifies:

Cross-examination continued by Mr. KIRBY:

Q. I understood you to say yesterday that you figured on the cost of labor and material for over 95% of the apparatus you appraised in arriving at its value?

A. I did.

Q. How did you arrive at your values for the water gas apparatus?

A. I obtained those from the proposals from the United Gas & Improvement Company.

Q. I other words you obtained bids from them?

A. Yes.

Q. So that that apparatus at least was not included in your 95%?

A. Not in the instance of the water gas plant but it was in the coal gas plant.

Q. In the coal gas plant you figured upon the material and labor for the construction of it?

A. Yes.

Q. I believe you also said you had access to the figures of Bartlett,

Hayward & Company, of holders constructed in New York for the Consolidated Gas Company?

A. I did.

Q. So that you took advantage in making your appraisal of bids from the U. G. I. of Philadelphia and Bartlett, Hayward & Company of New York on such apparatus as these concerns installed for
6612 gas companies?

A. Well, those of Bartlett, Hayward & Company were the actual estimates either by myself personally or under my direction.

Q. But no matter how they were made I understand it that they were not yours at the time of making this appraisal?

A. They were mine in a sense of the word, yes, because they were prepared by myself or under my direction.

Q. But were in the possession of Bartlett, Hayward & Company with which you were no longer associated?

A. That is right.

Q. Now I state to you that Mr. Edgerton's figures on holders were checked before their insertion in his proposal by the sales agent for three of the largest holder builders in this country. Assuming this was so would this in any way change your opinion as to the accuracy of Mr. Edgerton's values?

Mr. MATHEWSON: I have no objection to Mr. Kirby's putting an assumption to the witness, but to say I now "state to you," which is testimony by counsel, I do not think it is quite proper.

Q. Then I will change the question and assuming say, that Mr. Edgerton before inserting the values obtained by him in his appraisal of holders submitted his figures to the sales agent of three of the largest holder builders in this country, and that these agents agreed with his values, would this in any way change your opinion as to the accuracy of Mr. Edgerton's figures?

A. No, it would confirm my opinion regarding the cost prices submitted by him for the reason that no matter who he re-
6613 ferred to they were not familiar with New York conditions as nobody built holders in New York for the last eight years except Bartlett, Hayward & Company, therefore they could not be familiar with New York conditions, and this would strengthen my valuation.

Q. Now will you also assume that Mr. Edgerton had access to and examined the cost of material and labor and total cost erected of the original four small holders of the Mutual Gas Light Company of this city, has had access to the cost of the holder for the Standard Gas Light Company of this city, and had access to the cost of the 2,600,000 cubic feet holders of the Central Union Gas Works of this city, would this in any way change your opinion as to the accuracy of his figures?

A. Not at all, because my estimate was based upon the conditions as they existed last summer. If he had access to such figures they were built under different conditions.

Q. Were all of Bartlett Hayward's figures for holders built last summer?

A. No, they were for holders built within the last twenty-five years, only the prices were applied to conditions as existed last summer.

Q. I notice in a great many of your foundation estimates, in fact in the majority of them, that you have estimated for piling under buildings of but twenty-eight feet in height. Is it usual to
6614 put any more than ample footings for such foundations?

A. It is. I have never built a building of that height for gas house purposes in ground that was bad and required reinforcement without any piling because I knew it would not stand.

Q. How did you arrive at your knowledge that there had been piling used in these cases?

A. I stated yesterday partly from drawings and partly from information that I could collect at the works. Where there had been any drawings in existence for the buildings under consideration I ascertained the necessity of piling from drawings or other buildings in the immediate neighborhood.

Q. In your inspection of various buildings around the neighborhood did you notice the condition of the three-story building opposite the retort house on 14th Street and endeavor to ascertain whether piling was used in each of the walls of that building.

Mr. MATHEWSON: What kind of a building is that?

Mr. KIRBY: Three-story brick building opposite the gas house in 14th Street.

Mr. MATHEWSON: Was it a tenement house or a part of a gas plant?

Mr. KIRBY: Not part of a gas plant.

A. I did not.

Q. Would it surprise you to know that this three-story brick building has no pile foundation thereunder?

A. Not in the least. I have heard of tenement houses falling down for want of proper construction and proper foundation, and such construction certainly would not be done by the Consolidated Gas Compnay.

Q. Will you give me the buildings you did look at to ascertain if they had piling foundation thereunder, contiguous to the 14th Street works?

6615 A. I do not recall the drawings which were in existence for particular buildings. What I have in mind now is 21st Street. I don't know whether there were any bad conditions at the 14th Street station. It is too long ago to remember.

Q. I call your attention to the description of a one-story building, as set down in the schedule of appraisal, 14th Street station shed, one-story building, galvanized iron siding, 38 ft. 3 by 31 ft. by 11 ft. 6, at underside of roof trusses, foundations 6 ft. 6 below grade, consisting of brick walls and 12 by 12 inch coping, constructed of piles, space, 30-inch centres, in double rows; do you consider that a building of that size and weight demands a pile foundation?

A. I don't know what the original intention was as far as the purpose of that building is concerned.

Q. I ask you do you consider that a building of that size, dimensions and weight demands a pile foundation?

A. Yes, I consider that no building could be built in that ground without pile foundation, no matter how small it is.

Q. A shed or anything of that kind?

A. Yes, sir.

Q. Have you ever made any estimate of the weight which soil of this character would hold up without pile foundation?

A. I have made many tests of ground of similar character, yes.

Q. And what weight do you think it would hold per square foot of area?

A. Well, I should not for a building or foundations of machinery place any weight upon it, because it may be hard in one spot and may be soft in another right alongside of it.

Q. Is there any apparatus in this one-story building, with galvanized iron sides, to which I have just called your attention?

A. No; I believe not. But I do not recall it.

6616 Q. It has no basement?

A. No.

Q. Now, we can eliminate foundations for machinery and simply take the building by itself?

A. Yes.

Mr. MATHEWSON: What building is that? Will you give me just the description of it, what it is known as?

Mr. KIRBY: I have given you the description. It is known as a shed of the 14th Street station. The description I have given. I will repeat it if you would like to have it again.

Mr. MATHEWSON: No.

Mr. KIRBY: The roof is galvanized iron or wood. Mr. Mayer has stated he is familiar with the character of the ground at 14th Street. I would like to know how much weight this ground would carry per square foot.

A. Why, I did not make any tests of the carrying capacity of the ground at that particular location, but from the description you read and from the character of the ground I know that no weight should be placed upon it at all.

Q. No weight at all?

A. No weight of a building or anything like a building.

Q. Not even a shed?

A. Not even a shed, because that shed may be used for supporting a great deal of weight inside for storage purposes.

Q. You know the use to which this shed was put, don't you?

A. I don't recall it now; it is too long ago.

Q. Let us assume that that was a shed which was not to be put to such use as holding great weights for storage purposes?

A. I would still claim the necessity of piling the walls.

6617 Q. So that every building whether it was one-story of half a story or five stories, whether it was what is commonly known as a shed, or no matter what its weight was, according to you would have to be piled?

A. It has to be piled.

Q. Notwithstanding the fact that across the street you have a three-story brick building which has no piling under its foundations?

A. It would not affect my judgment at all.

Mr. MATHEWSON: No evidence in the case that there is such a building.

Q. Would it influence you in any way if this three-story building across the way to which you have made reference was a factory in which there was machinery?

A. Not at all.

Q. Do I take it that you assume that Mr. Edgerton in making his appraisal of these buildings did not compute on any piling for the foundations?

A. To the best of my recollection he stated he did not consider piling necessary and did not include it. Now, whether that was just in 14th Street or some other place, I don't recollect exactly, but it was in either one of the places.

Q. That is the only ground which you took for coming to your conclusion. Now if it be a fact that Mr. Edgerton merely stated that he did not consider a piling foundation necessary that would not indicate to you, would it, that he had not estimated on piling in getting at his appraisal valuation, would it?

A. Not only that fact alone, but his detailed estimate did not show it, that he included any piling except in a few instances. In a general way, if I remember correctly, he said he made an estimate for piling so many thousand dollars. Where that thousand dollars comes from or how he arrived at it I don't know.

6618 Q. But the mere fact that he stated piling, so many thousands, would indicate he had estimated on piling?

A. No, it would not indicate he had estimated at all, but that he made a wild guess.

Q. Well, call it whatever you may, but he included piling?

A. Only in a few instances as I remember his detailed estimate now.

Q. Point to the testimony and show me where you consider he has not included piling where you set it forth, as being under the buildings for foundations?

A. I referred to the detailed figures which he submitted and which I had to look over.

Q. Nothing in the testimony?

A. Yes, it was so stated in the testimony. I cannot refer to the pages. In many instances he said there was no piling there and why there shouldn't be any there.

Q. That is quite true but that is not testimony to the effect that he did not estimate on the cost of the piling?

A. If he was familiar with the structures and surrounding buildings and the consequent action on pipes in certain cases he would not consider that piling was unnecessary.

Q. I do not presume that there would have been for a gas works peculiar conditions existing so that they would require pilings,

whilst a factory building to sustain a greater weight might not need piling?

A. A big difference between the two. The effect produced by settlements might put the whole station——

Q. That would apply to your one-story shed?

A. It would.

Q. In which there would be no pipes of any kind?

A. There might be. There might be some in the immediate neighborhood in the ground that would be affected by the settlement of the buildings.

6619 Q. And presume there were no pipe contiguous, would that change your opinion?

A. Not at all. It would have to be piled if it is a building for a gas works.

Q. Did you notice that the brick wall around the holder yard at 14th Street and Avenue C leaned badly over towards the street so it had to be secured to the holder columns and anchored inside the yards to keep it from falling in the street?

A. I did.

Q. Did you notice in the 14th Street retort house that truss girders of considerable depth were stretched across the retort house at a number of places and apparently introduced since the building of the house to keep the building from falling apart?

A. I did.

Q. Do you consider the roof of the purifier house at 42nd Street to be in good repair while at a number of points a good view of the sky can be had through the roof?

A. What is that, 42nd Street?

Q. Yes.

A. I don't recall that.

Q. Did you take particular notice of the woodwork of the trestles in the 42nd Street yard?

A. Yes.

Q. Isn't that woodwork, all of it, as a matter of fact, in such a dilapidated condition, as well as the flooring above, as would call for a general condemnation of the whole of it?

A. No.

Q. What condition is the woodwork in?

A. I cannot recall exactly, but it is in condition as far as depreciation is concerned, according to the value of depreciation that I put it down at that time. It is impossible to remember all of those details now when the investigation was made several months ago.

6620 Mr. MATHEWSON: I think that was the vast sum of $1,000 that was attributed to the trestle, or something like that.

Mr. BURR: You wasted a good deal of time upon $50 in this rebuttal, so that by comparison that sum is vast.

Mr. MATHEWSON: Perhaps I saved it. You won't save the thousand.

Q. Mr. Edgerton has estimated the cost of frame Phenix column holders at 63d Street and 65th Street, at a value of $48,000 each,

due to the extraordinary amount of iron introduced into that frame, thus making the cost of the frame nearly one-half the cost of the iron work of the holder. Do you consider the introduction of this amount of iron into the frame excessive?

A. Well, if you will refer to my valuation you will find that if there is a difference that this difference is due to either lack of weight in Mr. Edgerton's estimate or else by applying wrong prices. The values I have given are absolutely correct. I built both of those holders, too, I believe.

Q. What proportion do you consider the weight of the frame to be to the holder?

A. There is no fixed proportion.

Q. Of these holders I am talking about, these two specific holders at 63rd Street and 65th Street.

A. I could not make a guess at that.

Q. But you built them?

A. I know, but that does not naturally enable me to make a guess as to what that weight was eight or ten years ago in proportion to the weight of the holder.

Q. You did not estimate that?

A. Of course, and that would vary with every style and detail of holder. There is no fixed proportion, therefore I cannot remember.

6621 Q. In making your appraisal didn't you figure on these weights?

A. I did. I took it right from the original cost.

Q. But you cannot remember now what the proportion was?

A. Certainly not, because there are thousands and thousands of figures that I had to make.

Q. And you have not the information at hand?

A. Except in my valuation.

Q. Except as there, you haven't it?

A. No.

Mr. MATHEWSON: If you want the information as to what the weight of the frame was and the weight of the holder——

The WITNESS: It is all in the testimony.

Mr. MATHEWSON: The witness can give it to you, if you want him to refer to his notes, can you, Mr. Mayer?

The WITNESS: Yes, it is in the testimony now, I think.

Mr. KIRBY: No, it is not.

Q. What did you estimate as the weight of these holders, exclusive of their framings.

Mr. MATHEWSON: He said he did not estimate, but took the exact weight and knows what it is.

Mr. KIRBY: Some of us call that an estimate.

Mr. MATHEWSON: It is not wise to do so.

The WITNESS: That is the three million-foot holder?

Q. Yes.

A. The weight of the holder is 1,204,610 pounds; the
6622 weight of the guide frame is 924,285; the weight of the pipe connections is 75,400. The total weight of the entire construction is 2,258,795 pounds.

Q. What did you figure the value of the holders to be exclusive of the guide frame?

A. I figured them altogether .

Q. So that in coming to your valuations for holders you took all the weights and multiplied it by a certain factor?

A. I did, and that certain factor is based on the actual facts existing last Summer.

Q. About that you have already testified?

A. I have testified, and I believe given the details how those factors were made up; the total was 7.1 cents per pound.

Q. So that the method of your appraising these holders was as set down in your testimony and as just stated, obtaining the weights of the different parts and adding them together and multiplying by a certain factor?

A. Yes.

Q. Coming for a moment to the tanks which contain the holders. I ask you if it is not considered from an engineering point of view that it is considerably cheaper to construct a brick tank in rock excavation than in any other kind of material?

A. No, it is very much more expensive. That is very plain on the face of it. When you have to excavate a whole mass of rock instead of earth it costs very much more. I don't see how it could cheapen the tank any. You have to do the same excavation as in ordinary earth and then build the holder the same as in ordinary earth.

Q. Do you estimate the entire amount of rock?

A. No, neither do you in earth where the earth is good.

Q. Do you excavate more rock than earth?

A. No more than you would in the instance of earth.

6623 Q. As much?

A. As much.

Q. Would you excavate as much rock as you would earth?

A. As much as you would good earth, yes. There may be a slight difference in the cone remaining in the centre of the tank, but the blasting would remove a great portion of the rock unintentionally which probably could remain there if it was not——

Q. But there is no drilling or blasting done for the purpose of removing the rock in the central part where the cone would be and where in an excavation in dirt the earth would have to be removed?

A. No, that is not so. The rock would not have to be removed. The earth would remain in the same spot where the earth remains in the other instances.

Q. But the earth, not standing up as rock does, is it not a fact that more of it would have to be removed than rock?

A. I have already stated just now very slightly more because you cann-t confine your explosions in blasting to a certain contour.

Q. But you endeavor to do so?

A. But you cannot; it is practically impossible. You always re-

move more than you intend and therefore the excavation is nearly like with good ground.

Q. Have you ever calculated the difference in the cubical contents which are removed from an excavation for a tank built in rock and one built in sand?

A. I have, in this very instance. The removal of the rock is based upon a drawing which is prepared for the special purpose of building the tank. Now blasting has got to be executed to the lines called for by that drawing and that gives the maximum amount of excavation of rock required.

Q. Yes, but in preparing the drawing for excavation in rock and also sand are the same distances and height of cone reached.

6624 Mr. MATHEWSON: He said ordinary ground and not sand.

A. In the instance of sand you would have to excavate to the natural angle of repose of that particular material.

Q. And that is so in all soil?

A. It is so in rock, especially where you have rotten rock.

Q. But the angle in rock is much more vertical than it is in soil?

A. Yes, but I have already stated that you can not carry out a vertical excavation and it is never done in gas holder tanks, this is due to the fact that the tank when completed must be absolutely tight. In order to make it tight you have got to cover the interior excavation and make the same tight with the covering of concrete or cement. Now you cannot put concrete or cement into a vertically blasted rock wall, and in order to permit of applying the concrete you have to blast on an incline the same as you would in the cone in the instance of good ground. The tank that leaks through the crevices in the excavated rock not properly protected by the concrete, in other words, would be of no value.

Q. So that you require a certain angle to be set down for an excavation in rock?

A. We do.

Q. And a certain other angle to be set down for an excavation in sand?

A. Yes, sir, and another angle for another kind of dirt.

Q. But coming to steel tanks of modern construction, I ask you if these could not be built for less than half the cost, including pile foundation, in place of the brick tanks now used for the small holders which you have appraised at 14th Street, 42d Street, 44th Street and 21st Street plants?

A. I am not prepared to say unless I investigate that question in detail and ascertain the details.

6625 Q. What is your opinion about it?

A. As an engineer I have no opinion in matters of that kind. I deal with positive facts only and by reference to my paper.

Q. Would you be prepared to state whether or not such steel tanks would cost as much as the brick tanks to which I have referred?

A. No, I think they would cost less than the four combined holders, including the brick tanks and in fact I know that is a fact because we have removed four holders and substituted them by a holder with steel tank on the same area.

Q. So you have at least some little opinion upon the subject?

A. Well, a weak opinion which is of no value so far as comparison of values is concerned.

Mr. MATHEWSON: They might cost twice as much.

Q. Where do you think you could obtain a duplication of any one of these holders together with steel tanks for one-half the sum that you have estimated to replace these holders?

A. I could not say that at all. It takes a good many references to figures to answer that.

Q. Speaking for a moment upon your 10 per cent. engineering factors as opposed to Mr. Edgerton's 3 per cent, I presume that in undertaking an enterprise such as the replacing of the works of the Consolidated Gas Company, you would start out by employing engineers and draughtsmen and such as that to lay down the plant, would you not?

A. You mean from the standpoint of the contractor or the standpoint of the gas company?

Q. From the standpoint of the man who gets your 10 per cent.

6626 Mr. MATHEWSON: If you were building the works. You mean the company, don't you, Mr. Kirby? That is, for a plant constructed for it?

Mr. KIRBY: I don't care whether it is a company, individual or what. Take the man who is getting this amount of 10 per cent.

A. There is more than one who gets 10 per cent. There is one 10 per cent. for the company and another 10 per cent. for the contractor.

Q. Yes, your final 10 per cent. you have spoken of and compared with Mr. Edgerton's 3 per cent.

A. The final 10 per cent. is expense incurred by the gas company. The gas company employs continuously a force of engineers and draughtsmen numbering from 50 to 75. That is about as big a force as I had under my direction as the chief engineer of the firm of Bartlett, Hayward & Company. It is this force of fifty to seventy-five engineers and draught-men and men that make up a very large portion, besides all the other items which I have enumerated in my testimony, of the 10 per cent.

Q. Now, we will assume that you have got a contract at the figures set down in your appraisal for replacing the buildings and apparatus of the Consolidated Gas Company. Would you employ engineers to lay out the work and draughtsmen to put the same into proper working drawings and prepare specifications and such?

A. That work will all be done by the gas company, that is, with the force of engineers and draughtsmen that I have just referred to. They would ask for proposals on specific parts of the contemplated improvements, such as apparatus or alterations to certain fixed buildings.

6627 Q. Now, in asking for these bids I presume that the details, say for gas holders and holder tanks, would be furnished by the firm giving the bid?

A. They might in some instances if they are approved of by the gas company. When they have an idea of their own that the details of the manufacturers do not suit them, they would change them to suit their ideas, and get bids upon such altered conditions.

Q. In these bids submitted by Bartlet Hayward, which you are familiar, were the plans and specifications for those holders and tanks drawn up by Bartlett, Hayward & Co., or the Consolidated Gas Co?

A. In the instance of the tanks of Bartlett, Hayward & Co., they are solely and alone my own construction and details. In instances of other apparatus, very often the gas company requires specific details to be incorporated in the construction upon which bids have to be made.

Q. I presume the U. G. I., from whom you obtained your bids for the Lowe water gas apparatus, also have their own plans and specifications, have they not?

A. Absolutely the same as in my instance with the gas holders.

Q. Now, your plans and specifications are prepared for say one stack of benches of a certain size. I presume those plans and specifications can be used for another stack of the same kind of benches, can they not?

A. They can under like conditions, but where conditions differ, or the details of construction have to be changed to suit that particular condition——

Q. That is, different foundation plans might have to be used or something of that kind, dependent——

A. In the instance of benches they would have to be adapted to the building unless it is contemplated to make such repairs
6628 in the buildings to permit of building benches of modern construction.

Q. This contract which you have, being for a great number of buildings and benches, I presume you would endeavor to so make the size of your buildings and benches that the plans for one would be fitted for use elsewhere, would you not?

A. Not at all. Every plan that I design is designed upon different lines to suit the local requirements and conditions as they exist. One cannot be applied to another.

Q. You never make your plans and specifications for say one holder in figuring upon the cost of another?

A. Oh, yes, I said before that we apply it to the requirements of the individual conditions.

Q. That is also true of your benches, is it not?

A. Also true of the benches and other apparatus.

Q. Of every apparatus?

A. Yes, the gas company watches the results obtained with the apparatus very carefully, and where they see the necessity of introducing improvements in the next apparatus for the same purpose, they request the manufacturer to incorporate that in his design.

Q. You have assumed a two years' building, what do you mean by that, that the operations from the time you obtained the contract to the completion of the work is two years?

A. I mean that it is two years from the time that the gas company places the first contract for grading and excavation to the time that they are able to make gas in that plant.

Q. And that includes such plans and specifications and work of that kind as would be necessary for the work?

A. It does.

Q. Did I understand you to state in your testimony of yesterday in reference to foundations of the 21st Street plant that the
6629 concrete foundations for the new Lowe machines were not piled?

A. I did say that, and the reason I presume for not piling this particular foundation was due to the fact that the ground was found to be sufficiently compressed from the piling of the building, and the adjacent foundation of the old benches which had been piled. There is very often a great difference in the character of ground within a very short space. I find for instance in two purifier houses at the Astoria plant, that within two hundred feet, the same kind of building, that in one instance the excavation alone of one building amounted to over $40,000, whereas in the instance of the other building, an exact duplicate, it was $27,000, and the buildings were only 200 feet apart.

Q. This last is an unusual condition?

A. Not at all; it is met very often.

Q. And in your assumption of the necessity of piling under such buildings as you have included in your appraisal, it was based upon information given to you by the employees of the Consolidated Gas Company or from such old contract that came into your hand?

A. Well, they were only sufficient to indicate that the buildings had been piled, and then the value of the piling was based upon my own detailed estimate of what those pilings would be if I had to construct them.

Q. I mean whether or not it was necessary for these buildings to be placed on piles, not the cost of them?

A. No, it was not any question of finding out whether it was necessary, but whether it was piled, and I found out they were.

Q. That is all you looked into?

A. That is all I looked into.

Q. You stated yesterday there was no visible dilapidation
6630 of the 14th Street plant and that it can be operated to the full capacity?

A. I did.

Q. In his connection did you notice that one entire stack of benches was let down, and kept down by reason of wear and tear on the retorts?

A. Where is that, 14th Street?

Q. Yes.

A. I don't think that was the fact at the time of my investigation and my examination of the plant.

Q. Did you notice Mr. Edgerton's testimony in reference to that?

A. Yes, I believe I recall that.

Q. Did you notice that six or eight benches or another stack were exhausted?

A. Not at the time of my examination.

Q. Did you notice that the stack of sixes accompanying the ½ depth furnaces, although nearly filled with retorts, was out of action?

A. I did not notice it.

Q. I ask did you notice it at the time?

A. No.

Q. Were all of these benches in action at the time of your examination?

A. As far as I can recall now they were, although I won't be sure of that fact because it was some time and it is possible that large number of benches were down, and I believe they were, for repairs; that is usual in the summer time, to shut down part of the plant to repair it.

Q. The condition would be different in December or January when Mr. Edgerton visited the plant, would it not?

A. It would as far as the repairs were concerned, but if they had other sources of production to supply the demand, they could afford to shut down a section of the plant.

Q. You stated yesterday that the pipe connections cannot be cut off in an old apparatus in order to connect on new apparatus. Must not, therefore, the new piping be a duplication of the old
6631 and on a larger scale, and when the old apparatus is removed what use can these old connections be?

A. I didn't refer to pipe connections for apparatus; I referred to pipe connections for the entire plant.

Q. Let us refer to pipe connections for apparatus.

Mr. MATHEWSON: I do not think Mr. Mayer so testified. I asked in regard to yard connections and nothing about——

Q. Let us take it, say to a puprifier box. Now, you have stated that such could not be shut down because the operation of the works must go on, and we will assume putting in a new purifier box and say you carried to that purifier box a new connection.

A. I didn't state that at all. I stated that the connections could not be taken out and replaced by others because it would stop the operation of the plant.

Q. Well, I think I stated the same thing in a little different way.

A. No, you referred to a single apparatus of the plant.

Q. Let us assume the single apparatus of the plant.

A. That is a different question from what I answered yesterday.

Q. May be it is; let us assume that it is. Will you answer the one I am asking now?

A. The question you ask now does refer to a single apparatus. If you mean to refer say temporarily to a single apparatus, to reconstruct the same, that of course can be done without shutting down the plant, because there are always valves between the gas mains and apparatus permitting a shutting down of such individual apparatus, but that is an entirely different question from what I answered yesterday.

6632 Q. So in the instance I have mentioned it would be possible to remove the yard connections and replace it by another?

A. No, it would not, I have not referred to general connections. I have referred to an apparatus, the elimination of this particular apparatus and not to any particular pipe connections except so far as they belong to that particular apparatus.

Q. Well, that is what I have reference to.

A. That is not yard connections.

Q. Well, take the yard connection running to that individual apparatus?

A. Well, you cannot take out the yard connections without stopping the operation of the plant.

Q. If, Mr. Mayer, you had been unable to obtain figures from the U. G. I. as to the cost of their water gas apparatus, how would you figure the value of such apparatus?

A. I should have had to figure them in detail, both for the fire brick linings as well as for the shells and mechanism to operate the plant, but as I have built many shells and a great many operating mechanisms for various kinds of water gas apparatus, including those of Mr. Edgerton's, I am familiar with the cost of that class of works from my own experience.

Q. I presume that the forms of these water gas apparatus, in fact of all apparatus in gas works, have been changed several times during your experience as an engineer?

A. Oh, yes, I have stated that just a few minutes ago, that the details have been changed.

Q. I presume also in estimating your value of guide framing, or rather the weight thereof, that the size and weight of a holder has much to do therewith?

A. No, none whatever. The size and weight of holder has nothing whatever to do with the guide frame.

6633 Q. So that a holder of small cross section would require as heavy a guide framing as one of large cross section?

A. That depends upon the result of statistical calculation, based upon the assumption of twenty-six pounds of pressure to the square foot of curved surface exposed to the direction of the wind.

Q. So that then a large holder which has relatively a large cross section would need a stiffer and heavier frame than a small one, would it not?

A. Oh, yes; that is natural.

Q. And a three or five——

A. Excuse me. What I meant by that, is not stiffer applied in the proper term of the word. It has to be just as stiff for a small as a big holder, but it would require more material in one than the other. The stiffness would have to be the same in both to resist the same wind pressure.

Q. And to get that stiffness in that large holder you would have to have more weight than in a small holder?

A. Yes, more material.

Q. Well, more material means more weight?

A. Yes.

Q. That is also true for a five lift holder as with a one lift holder?

A. Oh, yes. Possibly I misunderstood your question before re-

garding the size and weight of a holder in comparison to the guide frame. I referred to the same individual holder, meaning the size and weight of a particular holder had no fixed relationship to the weight of its own guide frame.

Q. That comes down to that with which we all agree, that cubical contents has little influence upon the weight of the guide frame; it depends upon the diameter of the holder?

A. That's right.

Q. You spoke yesterday of your detailed estimate of cost
6634 of the governor and boiler house at 132nd Street?

A. Yes, sir.

Q. And you gave a cost of that per cubic foot, did you not?

A. I believe I did.

Q. Do you remember what that was?

A. I think it was fifteen cents, wasn't it? I don't remember.

Mr. MATHEWSON: 13.2 I think.

The WITNESS: I think it was fifteen cents, that is my recollection. That was 132d Street, wasn't it?

Mr. MATHEWSON: Yes.

The WITNESS: Fifteen cents.

Q. Is that the building which you compared with Mr. Edgerton's cost?

A. I did.

Q. That being the only exhibit which I had I will take that up. I refer you to Complainant's Exhibit 373, which purports to be a comparison between your valuation of that plant and Mr. Edgerton's, and I ask first of all where do you get the value of $30,000 as Mr. Edgerton's valuation, cost given in schedule, because by referring to the testimony I see that the value set down is $21,000.

Mr. MATHEWSON: Mr. Edgerton computed that at $21,160, and I am not sure but that may have been one of the clerical errors in the schedule that Mr. Edgerton presented, which was subsequently corrected on your list here—$30,000, I mean.

Mr. KIRBY: In my copy of the schedule, I have not the original, and in the printed schedule which was taken from the original, the value is set down not at $30,000, but as over $21,000, or $21,160.

Mr. MATHEWSON: $21,000 it was put down as—was that
6635 the depreciated value or original value, Mr. Kirby?

Mr. KIRBY: I don't know.

Mr. MATHEWSON: There are $30,000 and whether that was an error and subsequently changed before printing—or maybe it was the cost without depreciation, I don't remember.

The WITNESS: I think it was Dr. Marks' testimony instead of Mr. Edgerton's.

Q. Then it is an error, instead of having $30,000 it ought to be as is in the testimony, $21,000?

A. It appears here $21,000. It may be I just changed the two schedules, Dr. Marks' and Mr. Edgerton's.

Q. Well, that is the case; you have just referred to the schedule where you got your information from?

A. Yes.

Q. And it is set down there as $21,000?
A. Yes; it should be Dr. Marks' valuation instead of Mr. Edgerton's.

Mr. MATHEWSON: In reference to that 132d Stre-t building, the 13.2 cents is the amount at which Mr. Marks figured Mr. Mayer's cost upon Mr. Marks' cubic contents, 13.2.
Mr. KIRBY: What I was after was Mr. Mayer's, and that is fifteen cents.
The WITNESS: Fifteen cents.
Mr. MATHEWSON: Mr. Mayer, on his own cubical contents computation gave fifteen cents.

Q. So that the figures which we have to compare are Mr. Edgerton's of $21,000, and——
A. $21,160, as given in his detailed schedule.
Q. And your figure which is——
A. $26,763.
6636 Q. What is this figure which I see here, $20,071? The figure in Complainant's Exhibit 373?

The MASTER: It says here total contents of building 133,800 cubic feet.
Mr. KIRBY: I just wanted to see what the value is and I think I know, but I want him to state.

A. It may be an error of the typewriter in inserting those two values. I do not recall for what reason they put that down. I don't know whether it had any relation to the 15 cents at all. The total contents of the building was 133,800 cubic feet.
Q. Well, 133,800 cubic feet at 15 cents per cubic foot would be what?
A. I presume $26,736.
Mr. MATHEWSON: You had better not presume. Just figure it out and see. That may give you some light. You had better look at your own record and find what the cubical feet are and not depend upon memory.
A. Well, I have it down here, 133,800.
Mr. MATHEWSON: Yes, but the question is raised about it. That is the building at the top of the page, isn't it?
A. Will you let me see my original schedule, please, of 132d Street.
Mr. MATHEWSON: You have it here.

By Mr. KIRBY:

Q. It is a fact that the number of cubic feet which you have set down on this exhibit as the cubical contents of that building, figured at 15 cents per cubic foot, amounts to $20,071, is it not?
A. $20,071, yes.

6637 Mr. MATHEWSON: Look at your cubical feet. Look at your memorandum and see if that is right.

A. That $20,071 refers to the building alone. And then there is an item for the foundations, $6,665, making a total of $26,736.

Q. Then, that is the cost you have given in your schedule, but you have figured this out now at 15 cents per cubic foot and you have given the cubical contents of the building?

A. Yes, I have already stated in my testimony that my additional values per cubic foot are based upon a foundation of about four feet depth below the surface of the ground; it includes though in that instance in good character of ground, which at 15 cents for the building make $20,071, and then there is an item for foundations, extra cost $6,665, making a total of $26,736.

By Mr. MATHEWSON:

Q. That is what appears in your original schedule?

A. That is on account of the original increased depth for foundations beyond that of normal condition.

By Mr. KIRBY:

Q. So you have tried to carry through the estimate of all your buildings a method which will make them capable of comparison, you have taken a certain unit assuming a certain depth of foundation and where that foundation has been carried deeper you have added to that and where it has been shallow you have deducted?

A. That's right.

Q. Now, then we are to compare Mr. Edgerton's valuation of $21,160 with your valuation of $26,736, is that correct?

A. That is right, sir.

Q. And is this figure of $19,310 which you have put under
6638 Mr. Edgerton's column that of his building exclusive of foundations so as to compare it with your figure of $20,071 exclusive of foundation?

A. Exclusive of the foundation as it exists here but including foundation of the depth of four feet as would be in normal condition, so that the two valuations are upon the same basis.

Q. So that there is practically but little difference between the two?

A. As far as the substructure is concerned, but he made a big blunder in his foundations.

Q. Endeavoring to trace this blunder, as you call it, you have taken certain values and put them under the column headed "Edgerton's values;" where did you get those values from?

A. From his total estimate.

Q. Did they come from his testimony?

A. No, from his detailed estimate which he submitted here in large yellow paper envelopes.

Q. Now, I notice that on page 3 of this exhibit, under miscellaneous items, you have fireproof concrete arches. Now, you included that in your cost of concrete?

A. Yes.

Q. And so in your tile coping, you included the cost of enameled brick and so on?

A. Yes.

Q. So that it has been impossible for you to make separate com-

parison between the values which you put upon certain parts of the work and values which you, looking at these sheets to which you have made reference, assumed Mr. Edgerton had put upon the same parts of the work, is that not a fact?

A. No. In most instances direct comparison was possible; and only in these few instances, such as fireproof, concrete arches, tile coping, fireproof doors, flashing and gutters and machinery foundations, amounting in total to $3,450, no comparison was possible.

6639 Q. Did you go through these sketches which Mr. Edgerton submitted here?

A. Oh, no, that was impossible.

Q. Do you understand those that you went through?

A. Do I understand them?

Q. Yes?

A. Well, I did as far as I could tell what figures meant when I saw them on a piece of paper added together. That is all it amounted to.

Q. What were these schedules, were they detailed statements of cost?

A. Well, they were intended to be, and with the exception of the omissions why they were detailed statements. There were a whole lot of omissions.

Q. You haven't any knowledge, have you, as to whether or not certain amounts as set down for a certain material or job say painting and glass, Edgerton's valuation $325 as against yours, being $150, you did not include hardware which you have set down as a separate item of $200?

A. If he includes painting and glass under hardware it would be a blunder right off. I don't see any connection between the two.

Q. It might be a blunder in the statement but it would give the same thing in dollars and cents, would it not?

A. I am not prepared to say.

Q. Neither are you prepared to say that the amount which he sets down as $520 for his granolithic cement floor which you give as $432 does not include other things beside the floor in itself?

A. I cannot tell, no, sir.

Mr. MATHEWSON: Might that include hardware, too?

Mr. KIRBY: It might very well include it.

6640 Q. In figuring out the costs of buildings and things of this kind, do two men work in the same way? Is it not a fact that one man will oftentimes include under a certain head what another man will include under another certain heading?

A. No; that couldn't happen very easily. He might apply different valuations but so far as the application of values to a certain class of material of workmanship is concerned he could not change those. He could not make carpenter's work like hardware or hardware like painting and glass or anything of that kind. He can apply different values but cannot change the character of the work to which it is applied.

Q. Now in going through these schedules you found a certain statement with the letters "etc." after them. Did you know what those letters "etc." referred to?

A. What are those letters?

Q. Well, it means and so forth, does it not?

A. I presume so.

Q. Do you know what and so forth means?

Mr. MATHEWSON: Let us see what it is that you are referring to.

Mr. KIRBY: My question is perfectly clear.

A. No, I don't know what and so forth means in putting a valuation on the cost of a building. I couldn't attach any value to it.

Q. So wherever in this schedule which you have just made reference to I show you "etc.," do you know what the "etc." means?

A. I don't know. It is of no value.

Q. And probably the only man who would know what "etc." meant would be the man who put it there?

A. That may be so but when you total up his summary and you find that a whole lot is missing then that "etc." explains that that "etc." was not taken care of. It was lost in some way or another.

6641 Q. As a matter of fact that "etc." might very well be those things which have not been taken care of?

A. Well, that may be, but when they are not there, of course his price is too low.

Q. And in such cases where his prices are smaller or higher than yours I suppose "etc." included certain things there which he had not taken care of?

A. Possibly.

Q. So in no instance, high or low, or the same, could he be right?

A. No the total is considerably lower. If the total was the same as mine it would be all right, but it is not.

Q. So the way you come to your conclusion is to take Mr. Edgerton's total and compare it with yours and because he is different he is wrong, is that it?

A. I know he is wrong because he has not allowed sufficient for sub-construction or foundation. It is self-evident by his detailed estimates that he has not included it.

By Mr. MATHEWSON:

Q. You would not include $6,000 of extra foundations under "etc.," would you?

A. I think not, unless figured *it* in detail.

By Mr. KIRBY:

Q. This question of foundations having been such an interesting one—I cannot find it here, but if I remember rightly you made reference to Mr. Edgerton's lack of including foundations in his appraisal of the 21st Street station. Did you make such a reference?

A. That may have been possible, I don't recall it exactly, but I believe it is quite likely.

Q. Now, do you find on Mr. Edgerton's valuation for these buildings to which I have called your attention that he has made
6642 any allowance for both foundations or any foundation except the foundation which could be used in the hard soil?

A. He did not. In some instances he did not allow enough for ordinary foundations.

Mr. MATHEWSON: That was the old and new generator house at 21st Street, was it?

Mr. KIRBY: I think that referred to the whole of 21st Street.

Mr. MATHEWSON: No, I don't think so, for I didn't ask him as to any buildings at 21st Street except the old and new generator plant, as far as I recall.

Mr. KIRBY: He went into a whole lot of talk about purifier houses and sheds.

Mr. MATHEWSON: The question asked was whether these buildings, with reference to these buildings, that is to say the two buildings respecting which I had been questioning the witness, and he said he found he had allowed only 621 cubic yards of excavation. There should have been over ten times as much or 6,740.

Mr. BURR: I find referring to certain buildings that Mr. Edgerton has made no allowance for pile foundations.

Mr. MATHEWSON: Yes, that is quite right.

Mr. BURR: Under the water gas apparatus and under the buildings.

Mr. MATHEWSON: That may be, yes.

Mr. BURR: And the witness stated he had drawings on such foundations and from such drawings and the information which was given him he built what would represent the existing foundations.

Mr. MATHEWSON: Yes. That is all true. Confining this
6643 to apparatus and foundations and buildings to which the witness was testifying. It may be Mr. Edgerton did not allow anything for pile foundations on any building at 21st Street, and this witness might so testify if it were true, but my point is, so far as I recollect, he has not covered it so broadly as that.

Mr. KIRBY: The contrary not only may be true, but is true.

Mr. MATHEWSON: Even if so it must appear in the statement.

By Mr. KIRBY:

Q. Well, so that we may get at the foundation of this whole foundation question, let us take up the 21st Street station and buildings. Let us take the first building set down in that schedule, stove storage and meter-proving shop. I ask you if you know——

Mr. MATHEWSON: Refer to your schedule in reference to the 21st Street plant, so you can know what you are after.

Q. (Continuing:) — how much Mr. Edgerton allowed for the excavation and foundation upon that building?

A. No, I do not.

Q. Now, I ask if you will tell me how much you allowed for excavation and foundation in that building?

A. $12,400.

Q. And did that include foundation for machinery?

A. There is not any machinery in that building.

Q. So that a statement in that schedule "foundation for machinery" is an incorrect one?

Mr. MATHEWSON: No, it is not.

6644 A. I have it here as merely a memorandum, instructions given to my men at the time of examining the plant to look out for foundations of machinery, and they had a memorandum by which they had to report to me. Where there isn't any machinery, there wasn't any included.

Mr. MATHEWSON: This was Mr. Mayer's private memorandum made out for his purpose, and to assist you I had copies made as speedily as possible and sent to you. There were in various cases expressions, "Foundations for Machinery," under different headings which were merely put there by Mr. Mayer's instructions to call the attention of himself and subordinates to look for foundations and include them if there were any, and it does not mean that any foundations were included in the total estimate. Is that so, Mr. Mayer?

The WITNESS: That is so; it was simply copied in making the copies of the schedule.

Q. Taking the meter repair shop and office, do you know how much Mr. Edgerton included for foundations in that building?

A. I don't recall it now. I looked hurriedly over his detailed estimate, but I cannot carry it all in my head.

Q. Nor for the stove repair shop?

A. Same thing.

Q. Or the——

A. There is no foundation for machinery in any of those buildings.

Q. And none included in your estimates of their value, is there?

A. None whatever.

Q. Do you know how much Mr. Edgerton allowed for his foundation for machinery over the entire plant?

A. No, he did not figure the foundation separate from his substructures and therefore you cannot tell.

6645 Q. In other words you could not from the sheets which you had before you separate the figures so you would be able to come to a conclusion thereon?

A. There were some instances where I think there was a figure at the end for these foundations estimated in round figure; in a great many instances there was no such figure.

Q. In those instances you were not able to make your separation?

A. No, because he did not figure it in detail.

Q. Do you deny that these sheets were the only figures that Mr. Edgerton had in making his appraisal?

A. That is the only one submitted to me.

Q. Well, I didn't ask you that.

A. Well, those are the only papers I can base my judgment upon, I haven't seen any others.

Q. In making your estimate did you have about three sheets or a sheet and a half for each building?

A. Wherever I made a detailed estimate it was made on the same basis that you have an example of before you. Foundations I kept separate from the buildings in order to establish a value of foundations.

Q. And the figures and calculations that you made to come to these conclusions I presume would cover a great many more pages than even here, would it?

A. No, it was not necessary for me because I employed a unit figure for the buildings which included a certain amount of foundation. All I had to estimate was the variations from normal conditions of the constructions under consideration and so I got basis for comparison.

Q. So that that would be a very simple operation?

A. It would be, yes.

Q. Quite a different operation, however, where you are working on the cost of buildings by detailed estimate of materials en-
6346 tering into the construction thereof?

A. No, it would not be very different for the reason as shown in my yesterday values in which the detailed estimates or rather the prices of the detailed estimate were included.

Q. In your unit values you had to go through quite a long process to come to a conclusion, did you not?

A. No, I had those.

Q. But at the time you originally made that you had to, didn't you?

A. Yes, indeed.

Q. You didn't do it on one sheet of paper either?

A. No. It took more than three or four weeks to do it, too.

Q. Now, if I remember your testimony yesterday you stated that Mr. Edgerton figured his brick at $14 per thousand laid?

A. I believe that was the case in that instance, that particular building. I have forgotten which one it was. I think it was at 132nd Street, the governor house——

Mr. MATHEWSON: No, exhauster house at 111th Street. They may have miscopied it 111th Street, but my notes make it so.

Q. I think you also stated that Mr. Edgerton's price for flooring was $40 a thousand, board measure.

A. Yes.

Q. Now, I call your attention to page 5393 and 5394 of the testimony, and ask you if it is not stated there that Mr. Edgerton in making his estimates considered the cost of material erected "brick work, ordinary brick, $14 to $20 per thousand; pressed brick $20 to $40 per thousand; lumber $35 to $60 per thousand feet B. M."?

A. Yes, but I am referring to the detailed prices applied to his estimate in yesterday's testimony—applying his prices given in his testimony in the detailed estimate, but much lower ones.

6647 Q. Will you tell me in how many instances he used brick at $14 per thousand laid?

A. No, I can't tell you that because I could not examine all the estimates within the time.

Q. Can you tell me in how many instances he used flooring at $40 per thousand feet, board measure?

A. No.

Q. And you assumed because he used it in one instance that he used it in all instances, is that right?

A. Well, I had a good reason for that assumption. I don't see why he should change the value in one building from that in another building for the same class of materials unless there is an error.

Q. And the cost of brick laid never varies, in your mind?

A. Oh, yes. I stated that repeatedly. It varies very much.

Q. You gave a value yesterday, I think, of $25 per thousand, did you?

A. And I gave in detail how that was made up in my testimony.

Q. When did you give that?

A. In my original testimony.

Q. I would like to have you give it to me now?

A. These prices are based upon conditions that existed at the time of my examination last Summer. The average price of the brick was $10, the minimum price at that time was $8, and the maximum price was $12. The labor of laying that brick for bricklayers was $7, the labor of the helpers was $4, the Portland cement was $2.25; sand and water, 80 cents; proportion of time for foreman, 50 cents; proportion of time for timekeeper, 20 cents; hod hoisting, 50 cents; scaffolding, 16 cents; total, $25.41, for which I applied a figure of $25.

At 1.10 P. M. a recess was declared until 2.30 P. M.

6648 Afternoon Session.

2:30 o'clock.

FREDERICK J. MAYER, being further examined, testified as follows:

Cross-examination by Mr. KIRBY (continued):

Q. Just before recess you gave us figures going to make up the cost of brick, which you stated you have used, as $25 per thousand laid, and you gave brick at from $8 to $10?

A. $8 to $12.

Q. Using an average figure of $10 per thousand?

A. That is right.

Q. Was that the price of brick in December of last year?

A. Thas was the price of brick in July of last year, at the time I made my examination.

Q. Is it not a fact that the price of brick in December last year and to-day is no higher than $7.50 per thousand, for ordinary brick, used in ordinary building purposes?

A. That is always the case in the winter time, when they cannot get up the river in winter, and they cannot make any deliveries.

Q. I suppose that it is the effort of every builder to purchase his brick at as low a figure as possible?

A. Yes, but he has got to buy them when he can get them.

Q. You stated that a bricklayer received $7.00 per thousand? Upon what day's wage did you base that?

A. $5.60 per day of eight hours.

Q. That would be the same as the wages used by Mr. Edgerton; that is, 70 cents per hour, would it not?

A. Seventy cents per hour.

Q. How many brick do you calculate he would lay in a day?

A. 800 brick in walls of this kind.

Q. Is it not a fact that bricklayers laying brick on straight work of this kind will lay a thousand a day, and oftentimes more?

6649 A. Not when the work is executed under the direction and supervision of the Consolidated Gas Company.

Q. In ordinary contract work such as is going on in this city, is it not a fact that men will lay a thousand and more bricks a day?

A. It depends on the character of the wall.

Q. I mean in this character of wall?

A. No, it is not. A wall that contains pilasters and curbing cannot have much over 800 brick laid in a day, when you lay it in cement mortar, in a full bed of mortar.

Q. Are all the brick of the Consolidated Gas Company laid in cement?

A. Almost all, there are very few exceptions.

Q. Is there no lime used?

A. Occasionally, but not often.

Q. Is that the way the brick is laid in most work in this city?

A. In most gas works.

Mr. MATHEWSON: Are we dealing with the Consolidated Gas Company's plant? It seems to me we are, and not with some other plant.

Mr. KIRBY: They may have laid the brick in cement when there was no necessity for it. There was a great deal of extravagant work done here.

Mr. MATHEWSON: This is testimony by Mr. Kirby.

Q. Is it not a fact that brick laid in buildings of this character in this city are laid with lime cement, instead of cement mortar?

A. No, it is a fact that they are almost exclusively laid in cement mortar, and not lime mortar.

Q. And you consider that the walls of the building of the Consolidated Gas Company are laid in cement mortar?

A. I do.

6650 Q. Is that true of the buildings at 21st Street?

A. I do not recall exactly whether this is true in any particular instance, but if these buildings were to be built today, they would be built in cement mortar.

Q. I see you put down here the price of a helper at $4.00 a thousand. What wage does he receive per day?

A. $3.00.
Q. For an eight hour day?
A. An eight hour day, yes.
Q. Is it not a fact that where hod hoisting machinery is used, the helper is able to serve more bricklayers, than where hod hoisting machinery is not used?
A. In buildings of this kind, where the heights are not very great, the hod hoisting does not cut a very great figure.
Q. Fifty cents on a thousand brick?
A. I mean the application of machinery would not, because the buildings are comparatively low.
Q. Do you use hod hoisting machinery as a matter of fact?
A. To a very small extent in buildings of this kind.
Q. I notice you have a foreman down here at 50 cents?
A. Yes.
Q. What do you figure his wage to be?
A. $7.00 per day.
Q. How many workmen do you expect that foreman will be able to take supervision of?
A. Any foreman is required to supervise from twelve to sixteen masons. That was taken from direct observation last summer during the construction of buildings at the Astoria plant, from where I collected all this data. I also ascertained that they could only lay 800 bricks a day.
Q. You do not consider that the bricklayers at Astoria are laying more than 800 bricks a day, in work of this kind?
A. They were not, at the time of my examination.
6651 Q. Is it your understanding that the sub-contractors that are laying brick at Astoria are receiving as much as $25.00 a thousand for brick laying?
A. If they do not they lose money.
Q. Then if it came to your attention that the builders that are erecting the Blair Building, which is at the corner of Broad Street and Exchange Place, and the builders that are putting up the North American Trust Company Building and the builders that erected the Title Guarantee & Trust Company Building or Broadway, each of *of* which is by a different concern, are to-day using in their estimates and prices for brick laying $15 to $20 a thousand, they would be losing money?
A. I know nothing about that class of buildings. I am talking about buildings that I have erected in my own experience, and as to which I have absolute facts.
Mr. MATHEWSON: Gas house buildings?
The WITNESS: Gas house buildings.
Q. Have you ever built gas houses in the City of New York?
A. I said in my testimony that my valuation was based upon the buildings of the completed plant of the Kings County Gas Light Company in Brooklyn.
Q. Are you prepared to state that the buildings of the kind that I have spoken of are more complicated in their character or that the laying of brick thereat would be more expensive than at a gas house

building of the same kind and character as the Consolidated Gas Company?

A. I would not be able to make any comparisons at all; they are so different in detail of construction that they cannot be compared.

Q. When was the Kings County Gas Company building put up?

A. I have testified to that.

6652 Mr. MATHEWSON: He went all over that in his original examination fully.

The WITNESS: 1897.

Q. You have also taken occasion to state your figures in reference to the price of lumber; are you aware that you can purchase to-day lumber of as good quality as that which is used in the majority of the floorings of the buildings of the Consolidated Gas Company for a price not higher than $30 per thousand board feet?

A. No, the price that I have obtained within the last few days was $45, and the price that I applied last summer I think was $42.

Q. Did you make application to the Southern Yellow Pine Company?

A. No, I did not.

Q. Did you make application to the Collins-Lavery Company?

A. No, I did not.

Q. I understood you to say that you did not make a careful examination of all these sheets, which are placed in the possession of counsel for complainant?

A. No, it was impossible in the time.

Q. I call your attention to Sheet for the 65th Street station, where there appear under the heading "Brick Work" certain dimensions, and I ask you if it is set down thereon at what price this brick work was figured?

A. That might be $17 or $18.

Q. If you multiply that by $18 you will get $3,600, will you not, and if you multiply by $17, you will get some other figure?

A. I presume so.

Mr. MATHEWSON: That would be a little less wrong than $14?

Mr. KIRBY: As you look at it.

6653 Q. Here is one of the buildings of the 21st Street plant, brick work, giving certain dimensions, $17?

A. Yes.

Q. That is correct, is it not?

A. Yes; that is, the application of the figure 17 is correct on that sheet. I do not know whether the calculation is correct.

Mr. MATHEWSON: Are the sheets the same as those which were in the envelopes when we had them.

Mr. KIRBY: They are the same sheets.

Q. In such of these sheets as you did examine, did you notice that in some instances the value of the building as given in Mr. Edgerton's schedule differed from that set down upon the sheet?

A. I cannot recall that now.

Q. Did you notice that in some instance the total of the amount

set down as the cost of the various elements of the buildings is not the same as the cost of the entire building as set down on the sheet?

A. That is about the same question; I cannot recall that in detail. There was too much stuff to examine in the time that I had.

Q. Did you notice that in some instances the walls were figured solid? That is, without any allowance for the windows equal to the cost of the brick work which is replaced.

Q. But in figuring the cost of the wall as such, did you notice that in some instances the wall was figured solid, without any brick being taken therefrom such as would be measured by the area of the window spaces?

A. No, when I examined the detail of the brick work, I believe I saw there was an allowance for the cost of the windows equal to the displacement of the brick.

Q. If the walls had been figured solid in the manner which I indicated, would not this increase the cost per thousand of
6654 brick which would have to be actually laid for that wall with the window spaces taken out?

A. No, because they are figured at the same cost. The windows are figured at the same cost as the brick work; consequently there is no difference.

Q. You misunderstand me. We will take a wall for instance in which——

Mr. MATHEWSON: If you exclude windows and put in brick, or if you exclude the brick and put in windows, the witness says that they offset each other.

The WITNESS: According to your own detail.

Q. Let us assume that we have a wall indicated on this blotting paper, and in it, there are say a dozen windows or doors or what not; now, let us say that we are figuring only on the cost of that wall, and we take its area solid without any allowance for any windows or doors or anything?

A. Without any allowance for pilasters, or anything of that kind?

Q. We will make an allowance for everything that is there, with the exception of windows and doors; if we take and multiply the number of brick as calculated in that way by, say, 16, we will come to a certain figure which would be the cost of that solid?

A. On that basis of applying a price.

Q. Applying a price, yes. Now, if instead of doing it that way we deduct from the number of brick the number which would be indicated by the area of our windows and doors, we would for the same value have to use a higher amount per thousand, would we not?

A. If $17 was the figure and what you took out for the windows is replaced by brickwork I do not see why we should; it will be one and the same thing for the cost of the wall; therefore the total
6655 cost of the wall remains the same.

Q. The total cost of the wall remains the same, but the total cost of the brick per thousand is different, is it not?

A. The total number of brick would be different.

Q. Yes, and if you figured your brick at the larger number than

were actually there and come to a figure which we will say would be $1,000, and you used that $1,000 as the value of your wall, and then divide that by the number of brick actually in that wall, you would get a cost per thousand which would be greater than that which you use, would you not.

A. Than that which I use?

Q. Than that which would be used (under such conditions) in your calculation?

A. Than that which I use, yes.

Q. You stated in your testimony yesterday that you made a detailed estimate of one of the sheds at the 21st Street plant?

A. Foundations, I think I said.

Q. Page 6574, the things of which you have prepared a detailed estimate; there you check your figures as to Shed No. 2, 21st Street.

"Q. And that would give a total of detailed estimate of how much for the shed? A. $67,846."

A. I think that detailed estimate referred to the foundation.

Q. Have you prepared a detailed estimate of any building at the 21st Street station?

A. For the foundations.

Q. Not for any buildings?

A. Except Avenue A shop, I think it is, 21st Street, which was omitted from my original testimony.

6656 Q. Then you figured all of these sheds at so much per cubic foot; is that right?

A. For the superstructure, yes.

Q. And that was 16 cents a cubic foot, was it not?

A. That included the purifier houses, and houses with double floors, yes.

Q. Did those double floors extend all over the floor?

A. They did in the instance of the revivifying room, but not in the instance of the purifier houses.

Q. How high are those buildings?

Mr. MATHEWSON: Which one are you referring to now?

Mr. KIRBY: I am referring to the one in the testimony at page 6,574, No. 2 Shed at 21st Street, the one of which he said he prepared a detailed estimate, and which he now says only referred to foundations.

Mr. MATHEWSON: That was the total detailed estimate.

Mr. KIRBY: $67,846.

A. The average height was 28 feet 6 inches; some of those were higher than others, but that was the average height for all six.

Q. And you used the 16 cents per cubic foot factor for each shed?

A. I did.

Q. How many of them were there?

A. 5 sheds, two purifier houses and 1 condenser house; all of the same dimensions.

Q. Were they separate buildings?

A. They were all in connection with each other, all adjoining each other.

Q. They had party walls, hadn't they?

A. Yes, with buttresses on both sides.

Q. Didn't you figure them as separate buildings?

A. No, my valuation of 16 cents per cubic foot, that took care of all that.

6657 Q. In other words it would be more if each building had its own wall?

A. If it had been one separate building, yes.

Q. How much would it have been in that instance?

A. I could not say that offhand; it requires that I should give it some little consideration, to establish a unit value of the building, because you have to do it in comparison with the other buildings.

Q. Would it have been a cent more?

A. I could not tell that offhand; I would have to make a detailed comparison.

Q. What is the construction of those buildings?

A. They are heavy walls, buttressed on both sides, with foundation walls 24 inches thick, and some of them have very expensive peaked roofs, and some of them have flat roofs.

Q. What do you mean by very expensive roofs?

A. For that size building, the peaked roof as compared with a flat roof; the flat roof is very much cheaper than a peaked roof.

Q. Are there any stories in them, floors?

A. I have already stated, in the oxide shed and the purifier house.

Q. But they do not cover the entire area?

A. No, but they all refer to the same valuation of 16 cents per cubic foot; 16 cents remains the unit for all of those buildings.

Q. Will you take those buildings and compare them with the building at the 132nd Street station, of which you have given a cubical contents factor of 15 cents, and tell me what in those sheds makes them more expensive than at the 132nd Street building.

A. The 132nd Street is figured at 15 cents for the building, and these buildings were figured at 16 cents.

Q. It would have been more but for the party walls?

6658 A. It would have been more but for the party walls, on account of the buttresses and heavy walls and the stone work and the foundations.

Q. How deep are those foundations at the 21st Street station?

A. They are 8 feet 6 inches to the top of the timber capping on top of the piles.

Q. In your 16 cent estimate did you include the piling in the foundations?

A. No, I included a foundation to the ordinary depth of 4 feet below the ground.

Q. So that as far as the foundation is concerned, you compared it with the 132nd Street building, did you not, where you add $6,665 for additional foundation?

A. Yes, that was for the extra depth below the ordinary.

Q. And you have done the same thing with the 21st Street Station?

A. Much more, because they are piled; considerably more.

Q. So that we can disregard that extra foundation. Now, disregarding that, tell me what in the building itself at 21st Street is such as to make your unit of value higher than it is at the 132nd Street building?

A. The brickwork itself, with the curbing, and the heavy offsets, the buttresses and the stone work on the buttresses.

Q. How many more brick are there in the walls of the 21st Street building, considering the wall as a party wall, than there are in the 132nd Street building?

A. You cannot make any comparison on that basis between the two buildings, at all; I could not answer that question, because my valuation was based upon so much per unit of cubical contents.

Q. But that unit varies, and varies according to the kind of buildings; you have stated that the reason is on account of the extra thickness in the wall. Now, I ask you if you can give me the
6659 difference in the number of brick?

A. Not in the number of brick, I cannot, only in that unit of value.

Q. As a matter of fact does not the 132nd Street building have more brick than the 21st Street building, considering the wall as a party wall?

A. I could not tell you, because I have not made that detailed calculation on that basis. It is on the basis of cubical contents.

Q. In the 132nd Street building you included a steel floor at a value of $2,104.99. Was there any steel floor in this building at 21st Street?

A. No, there is not.

Q. You also included some monitor sash, $630, was there any monitor sash in this building?

A. No, there is not.

Q. You also included some terra cotta roof covering, $1,170? Is there any terra cotta roof covering at 21st Street?

A. No, there is stone covering, though.

Q. You also add as high as a value for slating and flashing as $2,250. Would there have been such an amount as this spent for similar materials at 21st Street?

A. Yes, the flashing would cost more; because it is a much larger roof?

Q. How about slating?

A. No slating, because these are different kinds of roofs.

Q. You also have fire-proof concrete arches at the 132nd Street building; are there any fire-proofed concrete arches at 21st Street?

A. No; it is substituted by brick instead of concrete.

Q. What are the arches for at 21st Street?

A. I was just going to say—some of these buildings contain foundations for apparatus, especially for purifiers.

Q. But that foundation you considered in the shed for
6660 purifier house, didn't you?

A. Yes, but it has for a total valuation, a 16 cent unit for all of it.

Q. Is that quite a large item?

A. Yes, quite an item.
Q. How much?
A. On the total cost of the foundation you mean?
Q. Yes.
A. I cannot separate the number of feet of concrete in each one of them now.
Q. It is not very large, is it?
A. It is quite an item, yes, sir.
Q. How much do those purifiers weigh? What do the foundations have to carry per square foot?

Mr. MATHEWSON: You have the weight of the purifiers, haven't you?
The WITNESS: Ordinarily about three and a half tons.

Q. Per square foot?
A. Per square foot; that includes the spent oxide in the boxes.
Q. What sized purifier would that be for?
A. The weight per unit of surface would vary of course with the depth of the box. The spent oxide alone weighs 75 pounds per cubic foot, to which would have to be added the concentrated load of the carriages, and the covers suspended from the carriages, and under those conditions the load on the foundations increases very materially more than if the covers are not suspended; therefore, when the traveling load is added, it comes to about 3½ tons per square foot.
Q. Do I understand that over the entire area covered by these purifier boxes there is a weight of three tons or more per square foot?
A. No, upon the foundation.
Q. Upon each foot of foundation there is a load of between three and four tons?
A. Yes, the foundations for the purifiers, that is the foundation for the columns.
6661 Q. That would mean the total weight of the purifier boxes would be how much?
A. This includes the weight of the oxide, and it includes the rolling weight of the covers when suspended from the carriages.
Q. In other words, you are putting down a foundation to suspend a moving load?
A. Yes, a maximum load; that is, normal load plus the moving load when the covers are suspended.
Q. In doing that of course you calculate the area foundation which is not directly under the load which is moved to that place, don't you?
A. I do not understand that question.
Q. Let us take two tons per square foot of area, what height of solid iron would that represent placed over that area?
A. These are all concentrated loads; the purifiers are supported on columns, and upon those columns loads are concentrated. It depends on the number of columns, how much the concentrated load will be. The less columns you have, the more load, and the more columns you have, the less load. I know from my own practi-

cal experience, and I have calculated many foundation- for purifiers, and I know that they average from two to three tons on those foundations.

Q. Exclusive of the oxide?

A. Including the oxide it would be about 3½ tons per square foot.

Q. Then instead of having a large area to sustain your purifier you have columns upon which the weight becomes concentrated?

A. Yes.

Q. That being so, the columns must necessarily be similar in area, would they not?

A. It depends upon the load upon them.

Q. You have assumed a load and stated one?

A. I have stated that the load depends on the number of columns under the purifiers.

6662 Q. Do you know the number of columns under the purifiers here?

A. No; you asked me a general question how much the load under the purifiers was, the load upon their foundation.

Q. I asked you a general question and endeavored to aid you to come to a conclusion so as to tell me what the cost of those foundations was?

A. I have the cost here, but I cannot tell you exclusively of the cost of purifiers; I can tell you in detail.

Q. I don't want it in detail.

A. Then I cannot give it to you.

Q. You cannot tell me what percentage of the total that would be?

A. Not off hand.

Q. In your 132d Street detailed estimate, you gave an estimate of platform and stairs, $740.04. Was there any such item in your 21st Street building?

A. There was in the instance of the purifier houses and the revivifying sheds, yes. No, they were not iron; they were wooden stairs. Besides, in those buildings there are elevators for the handling of the oxide.

Q. You have given the value of these elevators in the schedule of your apparatus, have you not?

A. I do not recall whether I did in this instance or not; I think it is likely they are included in the cost of the buildings.

Q. The schedule will show. My impression is that they are in the schedule of apparatus. Those sheds were coal sheds, were they not originally?

A. I presume they were originally built for coal sheds, and for general store sheds.

Q. You have included in your estimate of their value an overhead runway to carry coal, have you not?

A. Yes, that is also included in that valuation of 16 cents per cubic foot, and the very fact that they were constructed for
6663 coal sheds made the walls exceptionally heavy and made the valuation a little more on that account.

Q. Are they old sheds?
A. They are old sheds, but they are almost as good as new.
Q. They were built in 1884 and prior to that, were they not?
A. Yes, about that time.
Q. Have there been any changes in them since that time, that you know of, besides putting in purifiers and revivifying rooms?
A. No, I do not know of any.
Q. Now, I call your attention to Complainant's Exhibit 372, in which you make certain comparisons in the second column thereof, where you say: "Edgerton's value new." What do you mean by Edgerton's values new?
A. Undepreciated.
Q. As a matter of fact those values in many instances included your own values, did they not?

Mr. MATHEWSON: That has all been explained. Mr. Edgerton in his statement accepted Mr. Mayer's figures in many cases and put down the depreciated value in the last column.

Mr. KIRBY: I am quite familiar with Mr. Edgerton's schedule and if you will look at it you will see that while Mr. Edgerton did that he did it in cases where he agreed with Mr. Mayer's valuation, or because he did not have time to make appraisal on his own account.

Mr. MATHEWSON: All right; he assumed them, and we are proceeding on that same assumption in our computation.

Mr. KIRBY: That is what I want Mr. Mayer to state, and not have it as it appears on that exhibit.

Mr. MATHEWSON: He did say so yesterday, if you will look at the testimony.

6664 The MASTER: Gentlemen, the more time you waste in repartee and argument, the less you will have for the examination of witnesses.

Q. I ask you whether the column "Edgerton's values" did not in fact include value which you yourself have put on part of the apparatus? I ask as to the second column. Are those all values which were given by Mr. Edgerton, or did they include value which you gave to the apparatus, and which were taken by Mr. Edgerton, for the reason, as stated by him in his testimony, that he had neither the time nor the opportunity to appraise them himself?

Mr. MATHEWSON: We do not know why he took them.

A. These were taken from Mr. Edgerton's details; that is all I know about it. I did not compare it with his testimony.
Q. Did you read his testimony?
A. I read his testimony, but I did not compare this with his testimony. I had the figures right before me, and there was no necessity for referring to any testimony.
Q. You do not understand that Mr. Edgerton agrees with you in all of your values, do you?

Mr. MATHEWSON: Is this important? I object to this. Mr. Edgerton stated his own conclusions.

The MASTER: It is proper cross-examination, if Mr. Kirby thinks it worth while to pursue it.

Mr. KIRBY: It simply carries a wrong inference, and I do not think the exhibit should stand in that way without explanation.

6665 Q. I refer you to the third column of this exhibit where it says: "Omissions"; have you a detailed statement showing what those omissions were?

A. They all appear in my testimony. They were omissions taken from my own schedules.

Q. Do you mean to say that your testimony of yesterday gives the apparatus the values of which when totaled up will equal the value set down in that third column marked "Omissions"?

A. My previous testimony does not, the testimony of yesterday.

Q. Then these are values which you yourself have given to apparatus of parts of the plant which you did not appraise at the time you gave your prior testimony?

A. Oh, yes, I did; these are values taken from my testimony and from my schedule, which I did not find in Mr. Edgerton's valuations.

Q. Will you tell what they are?

A. Yes, I can tell you that; it took a long time to find that out.

Q. You have not prepared a statement of that?

A. Here is Mr. Edgerton's statement; I have got it right here.

Q. You have not prepared a detail of this third column?

A. No, I had not the time, but I can give it to you all from here, item for item. In the instance of the 132nd Street station——

Mr. MATHEWSON: There is nothing in there from the 136th Street station, Mr. Mayer.

Q. Take the largest, the 99th Street plant. There is $50,000 or more; that is the only item that amounts to anything, $50,000 and more; take that and tell me what it is. The other amounts are so small that I cannot waste much time on it?

A. The total amount was $50,493. Can I see the original sheet?

6666 By Mr. MATHEWSON:

Q. Yes, you may have taken that out of the wrong station; it doesn't seem to run parallel exactly (hands witness original sheet). May it have been in connectings?

The WITNESS: I am trying to find out, I cannot tell without reference to my detailed notes. There is one item 11 through benches of sixes, back to back, $48,620. There is no valuation in Mr. Edgerton's schedule for it.

By Mr. KIRBY:

Q. Are you not aware that Mr. Edgerton did value those eleven through benches, giving the cost new $39,000 with depreciation of 6½ per cent., giving it a value of $33,307, and so stated in his testimony?

A. It don't appear in this schedule.

Q. That is in your typewritten copy of the schedule?

A. That is the schedule which was furnished me.

Mr. MATHEWSON: Furnished by you to me, Mr. Kirby, and the one that this witness had to examine.

Q. Did you compare that with the exhibit in this case?

Mr. MATHEWSON: Why should he? It was a carbon copy that you delivered to me for our purposes, and if you made a change in the exhibit afterwards, and did not notify us, we are not to be held responsible.

Mr. KIRBY: I have made no change in the exhibit whatever, but if Mr. Mayer had read Mr. Edgerton's testimony he would have found a reference to these very benches, and the value given.

6667 Mr. MATHEWSON: There is your cover and the whole thing as it was delivered to us. Do you mean to say that there has been an addition of that to the exhibit?

The WITNESS: I do not know whether it is in the exhibit, or whether it is not; I only know it is in the testimony.

Mr. MATTHEWSON: There is the carbon copy which was delivered to us.

The WITNESS: The item is there but there is no value given.

Mr. MATHEWSON: And that was filed and printed as an exhibit in this case.

Q. Let us take the one for the 14th Street plant, $13,279——

A. Here is another item; I find it now, $1,650 for two Mackenzie exhausters, page 5.

Q. Don't you find a value in the very schedule that you have before you of $3,726 for those two Mackenzie exhausters?

A. The connections for the exhausters have been omitted. I think it is connections; I will refer to my detailed schedule. What station is this?

Q. Just what do you mean has been omitted, if anything?

Mr. MATHEWSON: I will say in regard to this typewritten exhibit that a copy was given to us long before the other was printed, and was given to the witness long before it was printed.

Mr. KIRBY: You will remember that at the time Mr. Edgerton was testifying he called attention to some errors, not only of omissions, but of adding in value twice.

Mr. MATHEWSON: I called his attention to those on cross-examination, and my own recollection is that this was one of them,

6668 now, you mention it, but of course, I did not go over those schedules.

Mr. KIRBY: I am trying to get nothing more than the fact.

Mr. MATHEWSON: I understand that. The amount of the omissions is not very much. It is only for accuracy that the witness has stated what they appear to be in Mr. Edgerton's schedule. It is fair to say that our question is not so much with the omissions, which are not large in amount, but the basis of valuations which Mr. Edgerton assumes in the property which he did include and value. I think that is clear.

The WITNESS: I have got it now.

Mr. MATHEWSON: What is the item?

The WITNESS: My price of $1,650 for the two Mackenzie exhausters—Mr. Edgerton has got a price below it of $3,726, which refers to the Greenfield vertical engines, the next item which was also taken from my schedule at the same price, but these figures are badly mixed in Mr. Edgerton's schedule; they were not copied right from my valuation.

Q. The Greenfield vertical engine has been appraised by Mr. Edgerton, has it not?

A. He has given a price for Greenfield vertical engines of $3,720, and in my valuation they are under the head of Mackenzie exhausters.

Q. The "valve as per Meyer" refers to the Mackenzie exhausters?

A. No, he has given a wrong price; that refers to the Greenfield engines.

Q. Be that as it may; what value do you give to the Mackenzie exhausters?

A. $1,650.

Q. Then Mr. Edgerton has given you the benefit of the difference between $3,726 and $1,650, and instead of being an error in
6669 the manner you have stated it is an error in the other direction, because he has valued, as you will notice on the schedule, the Greenfield engine himself and given the cost as $2,000, factory price, and with depreciation value of 15%, $1,700?

A. He applies the price which I gave him in my schedule for Greenfield engines, for Mackenzie exhausters, and did not put down the Mackenzie exhausters, which would be probably the difference between the two.

Q. And it would be a debit instead of a credit, and it is really not worth while taking up this time about it; and the fourth column of this Exhibit No. 372 is simply additions as you made them from the values you have set down there?

A. Which I set down as being omitted:

Cross-examination by Mr. BURR:

Q. Have you been in Astoria lately?

A. Yes.

Q. When?

A. Last Sunday.

Q. How many times have you been there this month?

A. Three times.

Q. Have you examined the plant over there?

A. I have.

Q. Within the past month?

A. Yes.

Q. And since Dr. Marks and Mr. Edgerton gave their testimony have you examined the plants of all the companies?

A. No, I have not.

Q. I mean, for the purpose of comparison?

A. No, it was impossible; I did not have time to do that.

Q. You did, as far as you were able, with the idea of correcting any errors in your previous valuations?

A. Yes.

Q. Did you find any errors in your previous valuations or your inventory?

A. No, sir.

Q. You have described some errors here to-day, have you not, in your inventory?

A. Do you mean these errors referred to just now?

6670 Q. Yes, and before this morning?

A. That is to say, in Mr. Edgerton's valuation that I referred to just now; it was not in my own.

Q. In making your examination of these plants and of the apparatus, if I understand you correctly, Mr. Mayer, you had the advantage of the aid and assistance of the officers and employees of the Consolidated Gas Company; you were enabled to inspect and examine and measure and weigh to your heart's content, were you not?

A. Yes.

Q. And you had all the information which was at the disposal of the officers of the company?

A. Yes, of those that I found at the gas works.

Q. You spent, you say, 3,780 hours in making an examination which has enabled you to appear here and testify so positively with regard to the correctness of your inventory and your valuation; is that correct?

A. Well, with regard to the 3,780 hours, that referred to the actual time spent in examination of the plant, not in the preparation of the schedules or the detailed valuation of the plants, only in the examination of the plant itself.

Q. That is what I thought, how many hours did you spend in the preparation of the schedule?

A. As compared with that——

Q. I am not asking you to be so particular as to designate the number of hours. Can you give me the number of days or weeks?

A. Probably at least the same number of hours, if not more.

Q. Now, allowing eight hours a day that would be 473 days or 15.7 months, would it not, for the 3,780 hours?

A. Yes, if your calculation is correct. I say yes, but I have not figured it over.

Q. And allowing twelve hours a day, it would mean 315 days or 10.5 months, assuming that my calculation is correct?

A. I presume it would.

6671 Q. You saw and consulted, undoubtedly, the inventory and calculations presented here by Dr. Marks and Mr. Edgerton, as you say, and they show at least great industry on the part of those gentlemen?

A. Yes, I don't doubt that.

Q. If I understand you correctly it is absolutely impossible for any man without the knowledge and information which Bartlett Hayward & Company possesses as to the cost of construction of gas plants, under New York conditions, to make a fair and reliable

estimate as to the cost or value of these plants in the City of New York to-day?

A. Generally speaking, yes, but I would like to modify that to this extent; that is absolutely correct in the instance of holders, and most of the apparatus.

Q. And how as to the buildings?

A. Not to the buildings, because we do not construct buildings ourselves.

Q. I will ask you, after the length of time that you have spent in the actual examination of plants and holders, are you prepared to swear now here that there are no foundations in any of the plants of the Consolidated Gas Company which are unused?

A. I do not know anything about unused foundations; my valuations only included those that are used.

Q. I am asking you, will you swear that there are no foundations in the plants which are not in use? Can you swear under oath that there are no foundations in the plants of the Consolidated Gas Company which are not in use?

A. I haven't paid any attention to that; I have only valued the foundations which are in use.

Q. In other words, there may be some foundations in the plants of the Consolidated Gas Company which are not in use, and
6672 those you have paid no attention to?

A. I don't know anything about those.

Q. And in ascertaining the depths and kinds of foundations which you have testified regarding, if I understand you correctly you were helped and aided by the original drawings used at the time of the construction of those foundations and which the employees or officers of the company were using at the time of the construction of these foundations?

A. That is so, the ones which I found at the works of the various stations.

Q. So that as regards those particular structures, you took the dimensions and you took the character of them as they appeared in those drawings?

A. To a large extent.

Q. Are you familiar with the exhibit introduced in evidence here known as Rowland's inventory?

A. I have never seen it and never heard of it until I came here to testify; I never heard of its existence.

Q. Then that accounts probably for what I am going to call your attention to; you have not accepted, therefore, the valuation placed by Mr. Rowland upon the various buildings itemized in his inventory, have you?

A. I have never seen it, Mr. Burr.

Q. You are quite sure you have made no mistakes of any moment in your calculations or in your inventory, and as I understand you you would desire to be understood as saying that if these other experts had all the information that you had they would have arrived at the same conclusions that you have?

A. No, I don't mean to say that. As far as I know there is no

error in any of my valuations, because they have been checked time and again. I do — mean to say that I have checked them
6673 all myself, because that would have been impossible, but I do not believe there are errors, and there are none according to my knowledge. As far as the other gentlemen reaching the same conclusion as I have is concerned, I am willing to state that under no circumstances would they reach the same conclusions, because they have not the practical experience in valuing these buildings that I have, and they could not reach the same conclusions even if they had had the same length of time at their disposal to reach those conclusions.

Mr. BURR: The conclusion is obvious.

Q. You say that Mr. Edgerton and Dr. Marks depreciated the U. G. I. water gas apparatus 20 per cent. Is it not a fact that Mr. Marks did not depreciate the U. G. I. water gas apparatus at 21st and 42nd Street stations at all?

A. I don't recall that at all; did I say that he depreciated it twenty per cent.?

Mr. MATHEWSON: I do not think he said that generally.

Mr. BURR: I have here this question in the typewritten record: "Now, did you observe that Mr. Edgerton's and Dr. Marks' depreciation for both the old and new U. G. I. stations, which had been for many years in operation, was twenty per cent.? A. I did."

Q. Aren't you mistaken in that? Is it not a fact that Dr. Marks did not depreciate U. G. I. apparatus in the 21st and 44th Street stations at all?

A. I cannot state that from memory. I would have to refer to the testimony and my notes and everything else.

Q. Are you not aware from the exhibit that you introduced
6674 yesterday that Dr. Marks did not depreciate the 132nd Street station at all?

A. Which exhibit is that?

Mr. BURR: I will give it to you in a second.

—— tention to the fact that there is an error there. What I said was, I think, that Mr. Edgerton *marks* the old U. G. I. sets as depreciated.

(Here Mr. Mathewson refers to the printed record at page 6599.)

My question in substance was whether Mr. Edgerton marks the old and new U. G. I. sets as having depreciated ten per cent., but not twenty per cent.; nor did the first part of the question read as the stenographer has it. I know there was nothing about twenty per cent., for I asked no such question.

Mr. BURR: And as far as Mr. Marks was concerned?

Mr. KIRBY: Nor so far as Mr. Edgerton was concerned?

Mr. MATHEWSON: No, nor as far as Mr. Edgarton was concerned.

Q. The depreciation which you have allowed was only the depreciation for visible decay, and allowed nothing for inadequacy and increasing demands and obsolescence due to the progress of the art of gas making?

A. The depreciation which I allowed in my opinion based upon practice for the last twenty-five years of making estimates for repairs, and I considered that the actual depreciation is represented by the cost of repairs required to put the apparatus in condition as good as new, and to serve its purpose intended. As to obsolescence and inadequacy I can only state what I have stated before, that in my opinion there is no obsolescence or inadequacy from the
6675 sources which you mention, because every year each of the plants receives additions or alterations or substitutions of apparatus. Old apparatus are substituted by new ones; and in fact all of the plants are kept up to the best possible condition, and are supplied constantly with modern apparatus in order to produce the best and most economical results; therefore, I cannot conceive that obsolescence or inadequacy, is in existence.

Mr. MATHEWSON: The question as it should be, on page 6599 is: "Now, did you observe that Mr. Edgerton marks depreciation for both old and new U. G. I. stations which have been for many years in operation as ten per cent."? instead of twenty per cent. The answer remains as before: "I did."

Q. That depreciation which you allowed for three renewals and extensions which you have referred to as due to the causes I have named, as inadequacy, etc.?

A. No, it is due to wear and tear principally, and in this instance of course the time was too short to make a detailed estimate of the cost of repairs, to establish a positive factor of depreciation, because such depreciation, based upon the actual cost of repairs, would require more time than the valuation of the new apparatus and take them apart to a certain extent to find out what repairs would be needed. It is my opinion based upon my practice and general knowledge, based upon the approximate cost of repairs for such apparatus.

Q. These gentlemen who undertook to follow you on behalf of the defendants, making inventory and giving valuation of these various plants and apparatus, they had the benefit of your
6676 knowledge as given here where you assumed to give the age of the different plants, the dimensions, size, weight, etc., and have used those to a very large extent, have they not?

A. I think they have.

Q. Referring to Exhibit 371, 14th Street station, you stated that there was an omission of eight holders?

A. Yes.

Q. Your valuation of them being $507,398?

A. Yes.

Q. Will you look at Complainant's Exhibit 70 in this case, page 193. I will call your attention particularly to the item there marked No. 19, gas holder tanks. Six tanks, Nos. 1, 2, 3, 4, 5 and 6, including guide plates and inlets, $198,000.

A. Yes, sir.

Q. Item No. 21, gas holders—six gas holders and frames, $198,000.

A. Yes, sir.

Q. Now, referring to block number 7, page 197 of the same exhibit, item number 41, gas holders—two gas holders and frames, $52,000; number 40, gas holder tanks—two tanks, including guide plates and well, $60,000?

A. Yes.

Q. Total for eight holders, Rowland's valuation in 1884, $508,800?

A. I don't see that last.

Q. The exhibit to which I am calling your attention is Rowland's inventory, so I ask you if you do not see there the total valuation as given by him, amounting to $508,800?

A. $116,364.

Q. The $198,000 that I first called your attention to, and the other $198,000, the $52,000 and $60,000 amount to $508,800?

A. In connection with the former, that may be, but I have not been able to figure it up in my head as you call off the figures.

Q. Refer to page 198 of the same exhibit and take the recapitulation as given there?

A. Total value of machinery, buildings and holders?

6677 Q. Yes, $1,706,294?

A. Yes.

Q. Don't you observe that the $508,800 valuation, assuming my calculation to be correct, the valuation of the eight holders, is included in this $1,706,294?

A. I presume it is; I haven't seen this before, I am not sure, but I presume it. It appears to be.

Q. Will you refer to Dr. Marks' testimony, page 5063, recapitulating the inventory, 14th Street; don't you find that this total of Mr. Rowland's of $1,706,294 is the first figure in the recapitulation?

Mr. MATHEWSON: Show him the testimony.

Q. (Handing testimony to witness.) Don't you find that to be the first item in the inventory of the 14th Street station, Consolidated Gas Company, 1906, as given by Dr. Marks as it appears on that page, 5063?

A. It is the same as it appears on this page, 198.

Q. As appears in Mr. Rowland's inventory?

A. I don't know how it appears in Mr. Rowland's inventory. This is the first time I have seen Mr. Rowland's inventory.

Mr. BURR: It will be conceded that this is Rowland's inventory, an exhibit in this case?

Mr. MATHEWSON: That is what it is stated to be "total actual first cost of buildings and structures 1884, $1,706,294." If the holders were included in that I suppose the witness assumed, as I think I would have assumed, that the buildings and structures did not include holders and apparatus. I did not know about that of course; I haven't checked them up.

6678 Q. If this total, given there by him, $1,706,294, includes the $508,800 which you say was omitted for those eight holders, then you are mistaken as to that?

A. I cannot give my *po*inion as to that; I have not added up this valuation and I don't know what it is.

Q. You can see; there is the exhibit before you.

A. I see some figures here, but I cannot give an opinion on them unless I read the whole testimony.

Q. You find figures on the pages mentioned, do you not?

A. I find the figures printed in this book.

Q. Your own valuation of those eight holders in 1905 is $507,398, is it not?

A. Yes, that includes the tanks.

Q. Mr. Rowland included the tanks, as I have shown you?

A. I can form no opinion about what Mr. Rowland included; I have not read it and I do not know.

Q. I referred you to it where it appears at page 197, Block 7, Items No. 40 and No. 41.

Mr. MATHEWSON: If it relates to that I suppose it can be pointed out?

A. Under that item it refers to two tanks, gas holder tanks—two tanks, including guide plates and well.

Q. $60,800?

A. Yes, referring to two tanks.

Q. And Item No. 41 is two gas holders and frames, $52,000?

A. It does not include any tanks.

Mr. MATHEWSON: That is page 197 you are referring to, of the exhibits or the testimony?

Mr. BURR: Of the exhibit; Mr. Rowland's inventory.

The WITNESS: There are no tanks given in that last item. In Item No. 41 it says gas holders and in Item No. 40 it says two tanks, including guide plates and well.

6679 Q. The difference between those two valuations is $1,402, which is all the depreciation you have allowed after twenty-two or twenty-three years of service?

A. I cannot follow you in my mind. You can read it from that paper, but I have not made any comparisons between my values and Mr. Rowland's values.

Q. I am trying to follow you.

A. I have based my depreciation on my opinion irrespective of Mr. Rowland's, and therefore, I am unable to make any comparisons as to my valuations or depreciations with Mr. Rowland's.

Q. Let us assume that this valuation of Mr. Rowland's valuation is as I have stated, and the difference is as I have stated, $1,402. Is not that 27/100 of one per cent. depreciation, and is it not a fact that it is about 1/100 of one per cent. depreciation annually which you have allowed on those holders.

Mr. MATHEWSON: I object to this; here is Mr. Rowland's valuation, he gives certain figures and he says Mr. Mayer's is a certain other figure, and he says that the difference is Mr. Mayer's depreciation, which is ridiculous, of course.

Mr. BURR: That is what you had Mr. Carter for two days doing, making calculations of this kind.

The MASTER: In view of what he says about his non-use of Mr. Rowland's valuation, I do not see what use it is on cross-examination, even if it is correct. I do not see why it is not a matter for your brief.

Mr. BURR: This exhibit is an exhibit of the complainants'; they put it in to bind us by Mr. Rowland's valuations at that time.

6680 The MASTER: It does not appear that it affects this witness' testimony.

Mr. BURR: I am simply calling his attention to Mr. Rowland's valuation in 1884.

The MASTER: He says that he does not know anything about Mr. Rowland's valuation in 1884, and you cannot attack his appraisal by any question in regard to Mr. Rowland's valuation if he did not see it.

Mr. BURR: Except as regards the item of depreciation, showing that a certain valuation was placed upon these holders and tanks in 1884, and that there was a certain other valuation placed upon them after the lapse of twenty-three years, in 1906.

Mr. MATHEWSON: But not by this witness.

The MASTER: It seems to me very remote, but if you gentlemen want to spend your time on that instead of saving it for Dr. Humphreys or whoever else will be here tomorrow, you may do it. I do not want to cut you off in cross-examination, but it seems to me a little out of proportion to the importance of what else there is in the case.

Q. When you say that Dr. Marks agrees with your figures in regard to any of these matters, you do not mean that he follows you in allowing ten per cent. for engineering and five per cent. for interest, do you?

A. No, I am speaking of the total figures.

Q. If you add your ten per cent. for general engineering to your valuation for these holders, $507,398 it gives you a total of $558,137 for the eight holders, and if you add five per cent. to this for interest charges, does it not give $586,044, or $77,200 odd higher val-

6681 uation on these eight holders than Mr. Rowland himself put upon them in 1884?

A. I do not know anything about Mr. Rowland; I cannot base any opinion on it, as I do not know Mr. Rowland's figures and do not know anything about them. This is the first time I have ever seen them.

Q. But that would be the fact, assuming these figures to be correct?

Mr. MATHEWSON: I suppose your computation is correct, but the witness would have to go through it to establish its correctness.

Q. Is that correct?

A. I presume so.

Q. Will you refer to Complainant's Exhibit No. 70, page 214, of this same book?

A. Yes, sir.

Q. I call your attention to the item house No. 10, brick building

on concrete foundation, composite roof, lime room and foundation for iron work, purifier house 66 x 184 feet?

A. I do not see that.

Mr. MATHEWSON: That is Mr. Rowland's valuation again?

Mr. BURR: Yes, $33,265.

The WITNESS: Yes, I see it.

Q. Page 215, house No. 9, 66 by 184 feet, $18,313?

A. Yes.

Q. House No. 8, condenser and scrubber house, 66 by 184, $43,-517?

A. Yes, sir.

Q. House No. 7, storage warehouse, 66 by 184, $24,435?

A. Yes.

Q. Page 216, house No. 6, storage warehouse, 66 by 184, $27,335?

A. Yes.

Q. House No. 5, storage warehouse, 66 by 184, $23,135?

A. Yes.

Q. House No. 4, storage warehouse, 66 by 184, $26,135?

A. Yes.

Q. Page 217, house No. 3, 66 by 184, $24,771?

A. Yes.

6682 Q. House No. 2, storage warehouse, 66 by 184, $25,443?

A. Yes.

Q. Is not the total of these valuations given by Mr. Rowland in 1884, as appears by that exhibit, $246,349?

A. The total was $463,131. You did not read all the figures on those pages?

Q. I am referring you to those particular houses?

A. I cannot follow you as quick as you can read and figure up these figures to see if they are right.

Q. We have had to do considerable figuring.

A. Well, I cannot do it.

Q. If you take a piece of paper and a pencil, you can follow me?

A. Then you must not read so quick; you must give me time to put it down.

Q. If you put down the figures, and Mr. Mathewson will follow the exhibit, we will get along.

Mr. MATHEWSON: I think I ought to say here for the record that this is merely taking certain buildings described in the exhibit which Mr. Rowland appraised at a figure in 1884, and taking certain other buildings described in the exhibit; and, assuming that they compact, although Mr. Mayer includes foundations for apparatus and Mr. Rowland perhaps does not, there is no evidence as to how the building is changed, and he is asked what the difference is between two amounts. If this line is to be pursued, it seems to me it is wholly useless as a basis of comparison, and I do not want my time in putting in my direct testimony from my chief remaining witness cut down, if this consumes a great deal of time. I do not see that it is important.

6683 Mr. BURR: It is very brief; we have got it in concise form and it is merely to call the attention of the court to the value of depreciation as allowed by Mr. Mayer.

The MASTER: You will have to have the time to finish up your case, and it will come out of the other side, Mr. Mathewson. They can cut short their examination of some other witness. I do not think it is of any material importance myself.

A. $246,349.

Q. Are not these the buildings on the block partially bounded partially by Avenue A and other property on Avenue A, 20th Street, East River and 21st Street, with the exception of the meter house which is not taken into consideration?

A. I am not familiar with those.

Mr. MATHEWSON: That is true. Take it out and look it over.

Mr. BURR: Yes, he has apparently never looked at Mr. Rowland's valuation.

The WITNESS: I do not see here a description of the block that you refer to.

Q. Is not that so?

A. With the exception of the meter house—I have to find that out; which meter house is it?

Mr. BURR: The meter house, 21st Street and Avenue A.

Mr. MATHEWSON: Now, are there any other buildings in that schedule, which is called Rowland's appraisal, which were not included in the figures given you and which you have just added up?

—. There may be buildings specified in some other place in the exhibit; I confes I do not know.

6684 Mr. BURR: Mr. Mayer is familiar with them. He has valued them.

Mr. MATHEWSON: Not in regard to that exhibit; he knows nothing about it.

The MASTER: What I do not understand is this; unless there is some evidence in the case from some of these witnesses, I do not understand how the valuation made by Mr. Rowland in 1884 can be of any value as compared with the valuation made by this witness in 1906. *Non constat,* but the property may have changed in a dozen different particulars between those two dates. Suppose the wall has fallen down; suppose one story has been added to it, or something of that kind. How any comparison based on those two valuations can be of materiality here, I do not see.

Mr. BURR: The testimony is—Dr. Marks says that he adopted Mr. Rowland's valuation and he inspected the buildings and he gave his testimony as to the character and appearance of the buildings.

The MASTER: But this witness says that he does not know anything about Mr. Rowland's valuations and did not take them into account.

Mr. BURR: That is what he should have done in making his depreciation, we contend.

The MASTER: That is a matter of argument. You cannot gain

anything by putting him through these valuations here, except to waste time.

Mr. BURR: I made the same objection to Mr. Carter's valuations, when he was allowed to go on with carefully prepared papers on every conceivable subject.

The MASTER: I am not going to cut you off, only I am
6685 giving you fair warning that you may need this time for something else that you may consider more important.

The WITNESS: Yes, apparently they are all the buildings contained in this paper, or the value of such buildings as taken from this exhibit, with the exception of the meer house, pages 213 to 218.

Q. Referring to your testimony on page 1478, shed No. 1, as given by you, south side of 21st Street, corresponds to Shed No. 2 on Mr. Rowland's inventory, does it not? Are not those the numbers made by Mr. Rowland on the doors of those sheds?

A. What shed is that?

Q. Your testimony, page 1478?

A. What page is it here in the exhibit?

Q. I am calling your attention to your testimony at page 1478. Look at that page of the record; you gave certain valuations as they appear on that page, of the sheds numbered 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10, didn't you?

A. I only find up to 5. Sheds Nos. 1, 2 3, 4, and 5. Are they marked as Shed 8, 9 and 10, purifier house and condenser house?

Q. You gave certain valuations there for those sheds, including a shaving and scrubber house, purifier house, condenser and scrubber house, and shed No. 10 purifier house. The total of your valuations of those sheds appears to be $677,183, does it not?

By Mr. MATHEWSON:

Q. Are they valued as sheds in your testimony?

A. Only from 1 to 5.

Q. What are the rest?

A. Purifier house and condenser house, and another purifier house.

Mr. MATHEWSON: Then those were the sheds, when you valued them?

The WITNESS: No, a purifier house and condenser house.

6686 By Mr. BURR:

Q. And you call them sheds, don't you?

A. No, I do not. You call them shed. You call them sheds 8, 9, and 10, but I call them purifier house and condenser house.

Q. I will read it correctly: Shed No. 1, Shed No. 2, Shed No. 3, Shed No. 4, Shed No. 5 and Shed No. 6?

A. There is no Shed No. 6 here.

Q. Shed No. 7, shaving and scrubber house?

A. No shed No. 7 here.

Q. Well, we will call it shaving and scrubber house. You valued that at $64,037, didn't you?

A. The shed, $67,846; purifier house, $7,626.

By Mr. MATHEWSON:

Q. Is that one shed or all the sheds, at $67,846?
A. Each. That is No. 1 shed.

By Mr. BURR:

Q. And the condenser and scrubber house, you place a valuation on that also?
A. Yes, $97,626.
Q. The purifier house, you give a valuation to that of $94,697?
A. $94,697.
Q. Is not the total of your valuation of those houses and sheds that I have called your attention to $677,183?
A. I will have to figure that up first. You include the two purifier houses and the condenser house, do you?
Q. Yes.
A. I make it $629,179.
Q. Will you add 15 per cent. and see what that makes?

Mr. MATHEWSON: Why? How do you know, even on your theory, that 15 per cent. was not included by Mr. Rowland in his appraisals, assuming that the buildings are the same.
Mr. BURR: I am giving you the benefit of adding his 15 per cent., or 10 per cent. and 5 per cent.

6687 A. Do you want 10 per cent. and 5 per cent., or 15 per cent.? It makes quite a difference.
Q. 10 and 5?
A. $725,652.
Q. Will you deduct Mr. Rowland's valuation of $246,349 from that?
A. $479,303.
Q. You do not claim that that difference is due to foundations, do you?
A. Why, Mr. Burr, I have already stated before that I do not know anything at all in comparison with Mr. Rowland's valuation; I cannot tell anything about it, as I know nothing about Mr. Rowland's valuation. I do not know how he did value the buildings, so that I am unable to make any comparison, and I cannot tell you.
Q. You refer on page 1556 to some brick and brown stone building used as an enclosure for holders?
A. That was at 18th Street, wasn't it?
Mr. MATHEWSON: Yes.
Q. Are not the brownstone trimmings on that building disintegrated and in very bad condition?
A. Yes, to some extent they were disintegrated, but just how much I do not recall at the present time.
Q. Don't you give a valuation there of $155,784, I think it is, is it not (shows to witness)?
A. I gave my valuation $169,328.
Q. What is the depreciated value?
A. $155,785.
Q. If you add to that depreciated value your ten per cent. and

five per cent, what do you make it? Or adding in round figures fifteen per cent., which amounts to $23,368, if my computation is correct, does not that amount to $179,151?

A. If your computation is correct it would amount to about that, yes.

Q. Will you refer to page 184 of Exhibit No. 70, Block No. 2, West 18th Street?

A. Yes.

6688 Q. Above 10th Avenue, two enclosed gas holders; also well, gas holder building, 188x92, brick with heavy stone trimmings, extra heavy roof, and internal framing, $45,250. That is the same property which you valued with fifteen per cent., at $179,151?

A. The location here would indicate that, yes, sir.

Q. Subtracting the valuation placed by Mr. Rowland, $45,250, from that, leaves a difference of $133,901 excess placed by you upon this building twenty-two years after Mr. Rowland valued it, is that the fact?

A. I only valued a building in the same location; whether or not it was the same building I could not tell, and therefore I cannot make any comparison with any of Mr. Rowland's statements; it is absolutely impossible for me to do so.

Q. There is only one building there, which occupies the whole block?

A. I do not know whether that building was in the same condition at the time of my examination as it was at the time Mr. Rowland examined it; besides which the cost of materials and labor at the present time is entirely different from what it was at that time.

Q. In your testimony regarding the 18th Street station you mention as an omission five sheds amounting to $145 in a total of $224,000. Have you seen those sheds?

A. Where was that, at 18th Street?

Q. Yes.

A. Yes, I have; last summer I have.

Q. As a matter —, would you say that they were worth five dollars collectively?

A. They are worth just what they are valued in my schedule; at that time I valued them carefully and I looked at them and examined them carefully.

Q. Are they fit for anything more than kindling wood?

A. Yes, they served the purpose for which they were intended at the time of my examination.

6689 Q. Don't you know that Mr. Marks stated in his testimony that he purposely left them out of his valuation, and that it was not an omission in the sense in which you use it?

A. It was an omission that appeared on the schedule.

Q. Are you not aware that the $11,800 of which you spoke, for foundations, at the 21st Street station was purposely omitted, according to the testimony of Dr. Marks, so far as the figures being included in the cost of the buildings was concerned.

A. What foundations do you refer to?

Q. 21st Street.

A. Which ones, there are lots of foundations at 21st Street.

Q. Referring to your omissions, $11,800, old retort house; you gave a valuation of that as $71,117, and you referred to an omission by Dr. Marks.

A. What was the amount?

Q. $11,800.

A. Yes, item No. 22, foundation for benches, omitted from his schedule.

Q. Don't you know that that item was included in the cost of the buildings, from his testimony?

A. No, I do not; I do not see why it should be.

Q. You have that here; and the other item $1,650 for furniture, marble fireplaces and so forth, was not that according to Dr. Marks' testimony purposely omitted, as a lot of antiquated relics?

A. I cannot recall his testimony at the present time. I know it is not in this total valuation. It is in use and is worth something; it was in use when I examined the plant.

Q. How about the other condenser; item No. 100, marked ten per cent. completed, $30,700. Do you recall that?

A. That item was omitted entirely.

Q. Don't you recall testifying yourself that there was 90 per cent. of that yet to come?

A. No, 90 per cent. of it was completed at the time; ten per
6690 cent. was to come, if I remember correctly. That condenser was partly erected, as I remember it; and most of the material was lying on the ground.

Q. On the contrary, was it not marked ten per cent. completed?

A. I will not be sure about that, but the material was there. I cannot tell how much of it was erected.

Q. Item No. 115, three filter presses, John Johnson & Company, $2,550.

A. It was omitted entirely from this schedule, Dr. Marks' schedule.

Q. Those filter presses were abandoned, were they not?

A. Not when I examined the plant; they were in good condition and could be used at any time.

Q. I call your attention to this other item, 16-inch Wiley Proportional meter, $1,600, Item No. 165. Was not that deemed unnecessary, and was it not merely experimental?

Mr. MATHEWSON: Deemed by whom unnecessary?

A. It was in position and ready for use; I presume it was in use at the time, and it was, for all I know.

Q. Dr. Marks testified that it did not appear to be in use; have you read his testimony?

A. I cannot recall.

Q. Item No. 28, $12,700, foundations for benches?

A. It is omitted from this schedule.

Q. Dr. Marks testified, didn't he, that that was valued with the building?

A. I do not recall that.

Q. Item No. 177, steel tank, $655. Did you find that yourself, Mr. Mayer?

A. Yes.

Q. Are you quite positive that that steel tank is in existence?

A. I do not know whether it is now, it was at the time I made my examination.

6691 Q. Do you recall the day when you saw that particular steel tank?

A. The day?

Q. Yes.

A. No.

Q. About how many months ago was it?

A. About seven.

Q. Dr. Marks testified that it could not be found by himself or the guide?

A. I cannot help that; that is not my fault.

Q. Referring to the 42nd Street station, you called attention to certain omissions of Dr. Marks, omissions which you say amount to $6,077, item No. 21, specifically, of that statement?

A. $156, is it not?

Q. Didn't Mr. Marks include that in his estimate for No. 2 coal shed?

A. It is marked here carpenter shop, but how he makes a connection between carpenter shop and No. 2 coal shed, I do not know.

Q. Dr. Marks testified that he did not include it in his estimate for No. 2 coal shed?

A. I did not know that. The item is here but no valuation. That is the reason I marked it as an omission.

Q. The point I want to make is this. If you read Dr. Marks' testimony he mentions these various things, and they were not negligently omitted. He did not value them because he did not consider they had any value. For instance, take item number 50, cast iron box?

A. I say I cannot recall all the testimony.

Q. In regard to that he said that the attendant knew nothing of its use, and it was apparently out of use. You say it is an omission of $636?

A. Yes.

Q. Item number 32, cribbing and earth work filling for eight oil tanks, $2,438?

A. It is omitted here.

Q. Mr. Marks allotted that to the general expense of construction, didn't he, in his testimony?

6692 A. I cannot recall it, but if he did it did not belong there; it belongs here where the item is.

Q. I call your attention to Exhibit No. 70, of page 242. Don't you find that Mr. Rowland gives four gas holders at $120,000 and four telescopic gas holders at $90,000, being a total of $210,000.

Mr. MATHEWSON: At what works?

The WITNESS: Eleventh Avenue on the Hudson River, 41st and 42nd Streets. It is marked here.

Q. Will you refer to items 94 and 95 of the inventory?

A. Of my inventory?

Mr. MATHEWSON: You will have to look at your inventory.

The WITNESS: Mine is not numbered.

Mr. MATHEWSON: I know it, but I guess you can find it.

The WITNESS: What station is it?

Mr. MATHEWSON: 42nd Street station apparently.

Q. Referring to your inventory, see if you did not give us a total depreciated value of those same holders in 1905 or 1906, $223,590, the value given by you, $245,209, adding to the depreciated value of those same holders in 1905 or 1906, $223,590, the value given by you, $245,209, adding to the depreciated value 10 per cent. What do you find the value given by you for those four holders in that inventory?

A. These are the four holders, 250,000 feet capacity?

Mr. MATHEWSON: Just look and see on the schedule.

The WITNESS: I am looking to see if I can compare them; I do not see how I can.

Q. What value did you give for those four gas holder tanks and four telescopic gas holders?

6693 A. For the tanks I gave $120,384, for the holders I gave $112,180.

Q. That is $232,564?

A. Yes.

Q. Now, you add 10 per cent. to that and then 5 per cent.; what do you make it?

Mr. MATHEWSON: Did he add 10 per cent. on holder stations?

The WITNESS: This is not a holder station; this is a plant.

A. To the whole plant I add that, but not to that particular item.

Q. If you add it to those two items, of which you have given the value as $120,384, and $112,180, what do you find it to be?

Mr. MATHEWSON: He did not add it, but if you want him to I suppose he can do it.

Mr. BURR: Yes, I would like to have him act as my computer temporarily.

A. $253,110.

Q. Now, add the five per cent.?

A. $268,610.

Q. That is a difference of $58,210 from the valuation placed by Mr. Rowland on those same holder tanks, is it not?

Mr. MATHEWSON: I do not know whether they are the same ones or not.

A. There is a difference between the figures given in this book and the figures given by my valuation, yes.

Q. I will not bother you to go over the omissions to which you have referred regarding the 44th Street station, save to say that they were omitted according to Dr. Marks for the same reasons, either because he did not deem them of value, or because he could not find them in his investigation.

Mr. MATHEWSON: Is that your testimony or his?

Mr. BURR: I am asking him in regard to it. He is criticizing Dr. Marks' statements.

Mr. MATHEWSON: I am asking whether it is your testimony or his.

Mr. BURR: It is my statement based on Dr. Marks' evidence, and that applies to all the other stations.

Q. Now, if you refer to your Exhibit No. 373, introduced by you yesterday, you gave the exact cost per cubic foot of contents, not including foundations at fifteen cents; is that so?

A. No, that includes a certain part of the foundations; it included foundations of ordinary depth, four feet.

Q. Then, you mean by that that a cubic foot of contents is not computed to include the foundation, but that the cost of the foundations is included in the fifteen cents?

A. Ordinary depths of foundation; to a depth of four feet.

Q. Didn't you observe that Dr. Marks fixes fifteen cents per cubic foot as the true first cost of this building?

A. I believe that his figure was identical with mine in that instance.

Q. And that in his computation he says as to all these buildings he has included not only the contents of the superstructure, but also to give full measure, the contents of the cellar or basement. Do you notice that?

A. Well, the cellar or basement would form a part of that building, because my computation was based upon from the first floor line as far as the contents of the buildings are concerned, up to the edge of the roof. Now, if there was a basement under these build-
6695 ings that would be included. Whether he did it on the same basis I am unable to tell.

Q. In regard to this particular 132nd Street station, as appears on Exhibit No. 373, don't you also note that the result of that computation from Dr. Mark's value is $569,604 as against $540,702 obtained by yourself with the assistance of plans and the figures and facts of the entire Consolidated Gas Company at your service, as you have stated, and do you not deem this a proof that Dr. Marks' valuations are liberal and more than fair to the gas company?

A. I do not know what you are talking about. I do not see any figure here of $569,604 for this building. The biggest figure is only $26,000.

Q. While Dr. Marks is looking for that I will call your attention to another matter. I call your attention to the recapitulation on the opposite page of Complainant's Exhibit 371. Have you got that there?

A. No, I don't know what it is.

Q. It is the exhibit offered by you yesterday?

A. Yes, I have it here.

Q. Now, I will call your attention to that exhibit, Mr. Mayer, Exhibit 371, and to your recapitulation. Do you not find on page 5108 of the testimony that Mr. Marks gives his actual present valu-

ation at $9,348,692 for the property of the Consolidated Gas Company's plants?

A. I will have to see that testimony.

Q. Do you not find those figures given there, $9,348,692?

A. Yes, under the heading of estimated cost per annual thousand cubic feet of sales, 1905, the structural cost of buildings, apparatus and holders is given as $9,348,692.

Q. Now, referring you to the following pages, 5064, 5063, do you not find the depreciation given on the 14th Street station as $725,175, $13,200 and $6,472?

A. On page 5063?

6696 Q. Yes.

A. Yes.

Q. And on page 5064 do you not find depreciation for 42nd Street given as $472,182?

A. Yes.

Q. On page 5069 do you not find the depreciation for the 44th Street station given as $132,808?

A. Yes.

Q. And I will read the rest of page 5076, and see if they are correct: 21st Street station, $612,304.

A. Yes.

Q. Page 5084?

A. I find these figures and I will try to follow as quick as I can, just hunting up the figures.

Q. Page 5094, 99th Street station, $129,974?

A. Yes.

Q. Page 5089, 18th Street station, $165,290.

A. Yes.

Q Page 5093, 63rd Street Station, $43,644?

A. Yes.

Q. Page 5095, 65th Street station, $81,499?

A. Yes.

Q. Page 5098, 111th Street station $96,780?

A. Yes.

Q. And on page 5101 and on page 5103, no depreciation is charged against the 132nd Street station or against the Inwood station?

A. Yes.

Q. Making a total of $2,479,323, if you want to verify that?

A. That is right.

Q. And that makes the actual present structural value given by him as a grand total, $11,828,020, does it not?

A. Yes.

By Mr. MATHEWSON:

Q. That excludes the omitted items however and of course the 10 per cent. and 5 per cent.?

A. As the figures appear I think it would.

By Mr. BURR:

Q. If you read the testimony as to the inventoried actual structu-

6697 rail cost of the buildings, manufacturing apparatus and holders of the Consolidated Gas Company, which was given by Dr. Marks with the statement that it is not customary in inventories where all the various subjects are in position to add either 10 per cent. or 5 per cent. to the cost as was necessarily done in the case of preliminary estimate of proposed works made by engineers; from your inspection of the inventory prepared by Rowland did you not observe that this was not done by Mr. Rowland in the inventory prepared by him in 1884, Complainant's Exhibit 700?

A. I did not inspect Mr. Rowland's valuation, therefore I cannot tell.

Q. Your total is $16,137,477, is it not?

A. I believe that is the figure.

Q. And that is $4,309,457 more than Mr. Marks' total of $11,828,020?

A. That was without allowing anything for the general engineering expenses and for interest charges.

By Mr. MATHEWSON:

Q. We will say that those items are items not valued, not omitted; or items whose value was included in the valuation of other buildings. Now, the original structural cost as given by Mr. Marks as you have stated appears to be $11,828,020, and this subjected to a depreciation of $2,479,328, which would be, would it not, about 21 per cent. on an average and yields an actual present value of $9,348,692. Now, have you noticed in the case of the 14th Street station——

Mr. MATHEWSON: Is that a question?

Mr. BURR: I am now drawing his attention to the depreciation as made up by Rowland in the case of the 14th Street——

The MASTER: He said within five minutes, and three other times, that he didn't know anything about Rowland's appraisal at

6698 all, never inspected it.

Mr. MATHEWSON: I don't believe he knows whether Rowland computes depreciation or not.

The WITNESS: I know nothing about Rowland's valuation.

Mr. BURR: Well, of course, I do not want to unduly protract the examination as a good deal of this is more argument than testimony, but I simply desire to call the Master's attention to the great differences which exist between the figures as found by Mr. Mayer and the figures as found by Mr. Rowland for the same property in 1884.

The MASTER: I see, but it — a matter of argument rather than a question to this witness, who does not seem disposed to change his valuations at all in consequence of anything you bring out. He says he does not know anything about Rowland's figures.

Q. Will you look at Exhibit 370, 99th Street station, Item No. 2, generator house?

A. Is that the same as this (indicating a paper)?

Q. The generator house, Item No. 2, are not your cubical contents incorrect there? This is the East 99th Street station; or if your cu-

bical contents are not wrong your multiplication of the 105,056 cubic feet at 13½ cents is incorrect, is it not?

Mr. MATHEWSON: Multiplication on those two would not necessarily bring Mr. Mayer's valuation, because that is only a unit figure, the result of which he adds for foundations of apparatus, etc., beyond a depth of about four feet.

6699 Mr. BURR: We will let Mr. Mayer answer it.

Mr. MATHEWSON: That was shown this morning in another instance exactly how he reached his total.

A. Yes, there is apparently a small difference.

Q. What is the difference?

A. I make it $133,840, as against $105,056.

Q. Now, will you multiply the cubic feet by the 13½ cents which you have adopted and see what it amounts to, or I mean multiply the number of cubic feet that you have found to be correct by 13½ cents?

A. It will make the price $15,368.

Q. Instead of $29,807, as given by you?

A. Oh, no, that only refers to the superstructure and not to the foundation. There is another item for foundation and buildings and foundations for water gas apparatus amounting to $30,732, in addition to that.

Q. That is not in Exhibit 370, is it, the generator house in East 39th Street?

Mr. MATHEWSON: The witness has testified that is——

The WITNESS: No, that is not here. It is just superstructure.

Q. Now, you see I am referring to Exhibit 370 and calling your particular attention to item 2, generator house, 69 feet x 67 feet x 24 feet, six inches high, and where you give a cubical contents of 105,056 cubic feet at 13½ cents, and your total upon that calculation at $29,807, and I ask you is not that incorrect? You have, as I understand, found that your cubical feet are incorrect, and I am now asking whether your general results, the amount, is not incorrect?

A. No, the $29,807 includes the foundations that I referred to just now.

6700 Q. Well, that don't appear in that exhibit.

A. They do not appear in that exhibit.

Mr. BURR: That is all.

Mr. KIRBY: I will just state to Mr. Mathewson that I have been reading over this testimony, and in reference to the detailed estimate of that holder at 132nd Street I believe, as far as I am concerned, if Mr. Mathewson desires to put it in, I have no objection.

Mr. MATHEWSON: 132nd Street?

Mr. KIRBY: The one you offered yesterday.

The MASTER: The hypothetical or typical estimate.

Mr. MATHEWSON: Yes, very good. I do.

Mr. BURR: I object to it as not being proper and as incompetent.

The MASTER: You were to call my attention to some thing, Mr. Mathewson.

Mr. MATHEWSON: Yes, I will, but I think I would rather examine

the witness on redirect first, if it does not make any difference to the Master.

The MASTER: No difference.

Mr. KIRBY: It is quite immaterial to me one way or the other.

Redirect examination by Mr. MATHEWSON:

Q. Referring to this generator house at 99th street which you value at $29,807 you have testified, as I understand it, that your valuation of that building includes both the building and the apparatus—the foundations of apparatus?

A. That is so in all instances. In all my valuations wherever there is an apparatus in a building the foundation is included.

6701 Q. And that is true even though you do not specify it when you give the name of the house?

A. In every instance.

Q. So taking the cubical contents and multiplying by the cents per foot which represents the building with a normal foundation of only four feet the product would not give your total valuation, would it, in many cases?

A. No.

Q. And to that would have to be added the excess for the unusual foundations to get your total valuation?

A. That is right.

Q. And that is the explanation of any situation that may appear in these exhibits?

A. That is the case all through my entire valuation.

Q. Reference has been made to the supposed fact that some paint appeared to be off the holder at 63rd Street or 65th Street. Would that indicate any physical deterioration in the holder if it were painted at reasonable intervals?

A. Not at all.

Q. Mr. Edgerton testifies on page 5324 of the record that on a visit to 23rd Street he had two gentlemen with him; he also says at another place that he was accompanied by a Mr. Woodward, and he subsequently states at page 5401 that he had two assistants to go over portions of the plant, but does not state what portions they were. Assuming that Mr. Edgerton had two assistants at all times who assisted him continuously or even four assistants, would he and they have been able, in your judgment, within the time at their disposal, to make an accurate estimate of the cost of the plant to the Consolidated Gas Company which they have appraised?

Mr. BURR: Objected to. I think that whole thing was traversed before. No use of bringing up this subject again. This is

6702 not redirect-examination.

The MASTER: It is redirect-examination, but it seems to me it is a question gone over so often it is not worth while spending any more time on it. Both sides have brought that question to my mind several times; that question of insufficient time in which to make the inspection.

Mr. MATHEWSON: That is the only question I have on that point, unless the Master thinks it is improper.

The MASTER: I do not think it is improper. I think it is all right for redirect-examination, but I think it is a little cumulative, that is all.

A. I am absolutely sure that the valuation within that time with any three or three dozen assistants could not have been accomplished.

Q. You were asked why you thought that Mr. Edgerton had not measured all these apparatuses and computed, and you stated for one reason that there was no time. Did the weights which Mr. Edgerton state for apparatus so far as he did state them indicate that he had examined them accurately and carefully?

A. Not at all.

Q. Now, Mr. Edgerton at page 4688 gave the weight of a iron tank on the roof of the boiler room at 14th Street at 72,348 pounds. What was the weight of that tank?

Mr. BURR: This is not anything brought out by cross-examination, Mr. Master. This all should have been gone into on direct-examination of Mr. Mayer. It is opening up new sources for cross-examination, I submit. I think counsel should have exhausted himself on his direct-examination and his rebuttal.

6703 Mr. MATHEWSON: He was directly asked why he thought Mr. Edgerton had not made measurements of the apparatus. Now, he says one reason was the weights that he gave where he specified apparatus, and I am asking in reference to these particular things.

Mr. KIRBY: But he should have testified to them on his direct-examination.

Question allowed; exception.

A. 90,000 pounds.

Q. On page 5336 he mentions eight purifiers at 42d Street and gave the weight as 443,544 pounds for the eight. What was the weight?

A. 675,720 pounds.

Q. At page 5342 he refers to the four holders, 250,000 pounds each at 42d Street. He said the weight was 1,120,000 pounds. What was the weight?

A. 1,580,000 pounds.

Q. At page 5432 he gave the weight of four holders at the 44th Street station as 203,300 pounds. He gave the weight of the holders with their frames and connections in items totaling 1,373,200 pounds. What was the weight of all those?

A. 1,751,880 pounds.

Q. At page 5355 he gave the weight of two holders at 65th Street as totaling 2,124,000 pounds each. What was the weight of the two holders?

A. For the two together, 805,600 pounds.

Q. I don't think you have got the right place?

A. 65th Street?

Q. Yes, there is the figure you made for your examination?
A. What size holders were those? Oh, those were the million foot holders?
Q. Yes, 2,124,000 each or 4,248,000 for the two?
A. The weight of one was 2,774,800 pounds and the other was 2,869,920 pounds.
6704 Q. Including shell, guide frame and connections in each?
A. Yes, sir; a total for the two of 5,614,720.
Q. Did you observe any case where Mr. Edgerton gave the weights, where he gave the actual weights as you recall it, of apparatus or the holders?
A. No.
Q. Now, I will ask you one general question in reference to Mr. Logan's testimony. Counsel for the complainant——

Mr. KIRBY: This is certainly not redirect-examination.
Mr. MATHEWSON: I know it is not and I will recall the witness, if you put it that way, for a single question. I know this is not.

Q. Counsel for the complainant gave Mr. Logan certain weights and asked him if he assumed those weights whether the valuation would be equal to your valuation, Mr. Mayer, or asked those questions in substance. Were the weights which were given to Mr. Logan in those questions the actual weights that you had found?
A. That was right.

Mr. MATHEWSON: I can go over them all. I have them here, but I think it is easier in that way.

Q. In each case?
A. In each case.
Q. Now, you were asked where you got the figures from which you made comparison with Mr. Edgerton's unit values of different material. Were they not the figures giving or purporting to give the details of valuation of the different buildings which were handed by defendant's counsel to me and delivered by me to you?
A. Yes.
Q. Did you use any other figures from any source but
6705 this in making the comparison?
A. I did not.
Q. In reference to piling; supposing you could get no information and had no drawings, but knew that the character of the soil was wet or swampy below a depth of three or four feet. Would it not be known to you as an engineer that you would have to put in pile foundations or other expensive foundations from that fact alone?
A. Absolutely, and I should certainly put in sufficient in a gas works because I know the danger arising from an insufficient amount of piling.
Q. In case a building is erected on an insufficient foundation in such soil it is not possible to put additional weight in the building, is it, without putting in a foundation which would mean the destruction of the building after the building is once built.

Objected to as calling for a conclusion, as the previous question

did and as all those questions do which commence "Is it not an impossibility," which Mr. Mathewson has so frequently used; and as incompetent, immaterial and irrelevant.

The MASTER: The question is undoubtedly objectionable as to form, Mr. Mathewson.

Q. If you desire to use a building to sustain a heavy weight in a gas plant located on such soil as is without pile foundations, would it be an expensive thing to reconstruct and put different foundations under the building after it is constructed?

Objected to as calling for a conclusion.

Question allowed. Exception.

A. No. It would be entirely too expensive to do it afterwards.

6706 Q. Did you take into account the fact that a wall was leading at one of the stations and that there were truss girders in buildings to which attention was called in making your estimate of value?

A. I believe that was in 14th Street, either 14th or 21st Street, I am not quite sure about that. The walls were bulged very much and leaning, and that to my mind was an indication of an instance where an insufficient amount of piling had been used or else the piles were cut down at a point above the water line and had rotted.

Q. Did you find the wall had been buttressed or otherwise supported?

A. The insufficiency of the piling had been taken care of by buttressing and the trusses you referred to.

Q. Did the wall appear to be firm at the time you examined it?

A. Absolutely, with those additions.

Q. Your attention has been called to the fact that contractors sometimes submit estimates in reference to apparatus where it is desired. Did you take that into consideration in computing your ten per cent. engineering cost to the company?

A. Well that is not to be taken into consideration directly in the ten per cent. charged for general engineering cost, which the contractor submits in the way of a general proposal and has not the slightest bearing on the work that is to be performed by the gas company in designing and arranging a gas plant.

Q. Is it general engineering and drawing of plans, grading, curbing, the storage and drain pipes and temporary fences and other things of that sort which go into the ten per cent. which the company has to expend?

6707 A. It is. I want to say right here that in some instances the grading amounts sometimes to digging away earth and often rock extending from fifteen to twenty feet above the surface before it is graded, and that sometimes goes over the entire surface of the building lot occupied by the gas works. A very large amount of earth under this condition was removed in the case of the new works at Astoria.

Q. Mr. Marks has testified as defendant's counsel has called your attention, that it is not customary for engineers in inventoring an

existing plant to make an estimate of its value, to include ten per cent. for engineering expenses; or five per cent., is that the fact?

A. I have to differ with Dr. Marks for the simple reason that it is an expense which the gas company has got to go to in designing the plant.

Q. Your attention was called to the fact that bricks are a little lower at this time of the year than they are in the summer. How does the price of other building material compare now with what it did last summer?

A. In a great many instances the cost of material is higher, particularly in the instance of lumber and also of steel. Steel plate alone went up in price since about the first of January, $8 a ton. Even with the bricks lower at this time of the year the cost of laying them would be considerably more than the difference in cost of the material or the total cost of $25, for the reason that the inclemency of the weather would not permit of laying brick at the same rate as in summer.

Q. What rate of wages did you assume in your estimate of cost in New York City, I mean Union rates or other rates?

A. Only Union rates, for the reason that the work could not be executed and finished within the time required by the gas
6708 company to permit them of using the plant when they need it without Union labor.

Q. Referring to the table of this 132d Street building, respecting which counsel has examined you, I observe that it figures up $21,160, and there appeared to be masonry $1,370, concrete $480, and the various other items mentioned for that total amount, and the item after which the "etc." occurs is as follows: "$150, painting, etc., isn't it?

A. Yes.

Q. Would you as an engineer suppose that any great amount was included in this $150 for painting?

Mr. BURR: Objected to.

The MASTER: It is hardly a question calling for expert opinion.

Mr. MATHEWSON: I thought not originally. I could not exactly understand the purpose of the examination.

I offer these sheets in evidence.

Mr. BURR: I object to the introduction of these because it is quite evident they are mainly pencil marks and incomplete data upon which some conclusion was reached by the witness Edgerton.

Mr. MATHEWSON: It shows the $21,000 at which he valued the plant very clearly.

Objection overruled; exception.

The MASTER: It being understood they are allowed simply for the purpose of meeting so much of the cross-examination as related to the question of what was included under the item "etc.," and such length on the subject of this memorandum and I assume you offer it to meet them?

Mr. MATHEWSON: I do.

Mr. BURR: Then there is no objection to that item "etc."
6709 being marked in evidence, but here is a whole lot there that I don't know anything about.

The MASTER: It has no probative force except for the purpose for which it is admitted.

Mr. MATHEWSON: He testified respecting them before and I would be quite entitled to call for them and introduce them independently of any examination of this witness.

Mr. BURR: At this hour and at this time I think it is wholly improper, and I object to it as incompetent, irrelevant and not proper rebuttal.

Objection overruled; exception.

Mr. BURR: Exception.

Mr. KIRBY: Exception.

Received in evidence and marked Complainant's Exhibit 375.

Q. You were asked in respect to the shop item No. 2, 21st Street, as compared with the 132nd Street—governor house, wasn't it?

A. Yes.

Q. And whether certain items in 132nd Street did not appear in the construction of the shop. On the other hand, is it a fact that certain features in the construction of a shop did not appear in the construction of the 132nd Street house?

A. It is impossible to make a comparison between the two buildings. They are so different in character and nature that no comparison is possible.

Q. When asked in reference to foundations you said that foundations must carry about three and one-half to four tons per foot. In addition to the weight of the purifier boxes and covers and the carriages generally the foundations have to carry the weight of the water in the seal and floors of the building.

A. Yes.

6710 Q. And the weight of the columns themselves, of course?

A. Yes.

Mr. BURR: I object to that as being improper, "of course" and assuming and telling the witness what they must do and what they must carry. This witness is entirely competent to tell what is the situation under the circumstances.

The MASTER: Do not lead him, Mr. Mathewson.

Mr. MATHEWSON: I will try not to. Where he is asked if certain things are not carried, it seems to me that I am entitled to draw his attention to some things and ask if they are carried. It would seem to me so, at any rate.

Q. Now, you were also questioned as to certain buildings in 1884 which were appraised by Mr. Rowland and then as to your appraisal at present. Do you know what changes of construction or otherwise have been made in any building appraised by Mr. Rowland in 1884 within the last twenty-two years.

A. I know that a great many changes have been made in all the buildings, but just what they consist of since Rowland's valuation of course I do not know.

Q. You know how many of them have had buttresses added, do you?

Mr. BURR: He has stated he does not know.
Mr. MATHEWSON: Yes, I know he has.

Q. Well, we will take eight sheds and which appear to have been valued by Rowland and now there appear to be five sheds and three purifier houses. Do purifier houses require any foundations
6711 and apparatus or otherwise or other things that you do not ordinarily find in sheds?
A. A great many.
Q. How about condenser house?
A. The same there.
Q. Do you know how the condition of any of the apparatus in 1884 compares with the condition at present?
A. I do not.
Q. Do you know how much has been spent on any item in replacements or repairs or renewals?
A. No, I cannot tell you that.
Q. Is it possible for you to make any comparison without knowing all the details as to conditions then and exactly what the buildings contain and what their construction was as compared to the present?

Objected to as calling for a conclusion of the witness.
Question allowed; exception.

A. It would be absolutely impossible for me to make a comparison unless I knew what was included in Mr. Rowland's valuation.
Q. Do you know in what buildings of Mr. Rowland he included any foundations of apparatus, if he included such foundations in any building?
A. I can tell you nothing at all about it.

Mr. MATHEWSON: Now, Mr. Master, I wish to renew this offer in evidence of Complainant's Exhibit 374 for identification. The testimony as I find it of Mr. Edgerton on page 5118 that there are many small and some large items that he was unable to calculate out on account of the number. He stated at page 5333 he had not
6712 figured the weight of six holders at 14th Street at all and based his estimate entirely upon their capacity. He stated at page 5336 that two other holders at 14th Street were figured on capacity and that he did not estimate separately for the guide frames. He stated that two holders at 65th Street were calculated on their cubic contents and he stated (p. 5373) he did not compute the weight of apparatus, and from that its value in every case; he stated (p. 5403) he took guide frames at 42nd Street at one-third the weight of the holder, and so on.

The MASTER: Now, as I understand it this exhibit that you offer amounts to this, that the witness says that no proper estimate can be made by the method that Mr. Edgerton has shown, that he used, and that the only proper sort of estimate is one going into details such as that typical exhibit that you offer.

Mr. MATHEWSON: Yes, and he also says in addition that it is impossible within the time which was at Mr. Edgerton's disposal to make such detailed estimates, all of which should be corroborated by an exhibition of the details required for even a single holder which

this witness says does not require so much figuring as a good many other kinds of apparatus.

Mr. BURR: I do not quite understand this, not having had an opportunity to look over the numerous pages of which this document is composed—some thirty-six pages.

The MASTER: As I understand it, he says that is the way you ought to figure on the cost of a holder.

By Mr. BURR:

6713 Q. Are these the various costs given here on this paper?

A. Only the weight. The costs are given in my testimony as to the cents per pound of its value in detail.

Q. This merely is a bill of material, is it not?

A. No, that is an estimate of the weight and of the various parts entering into the construction of the holder.

Mr. MATHEWSON: You will see at the end of the statement of the number of feet total.

Mr. BURR: I notice here at the end, and that is why I base my objection against its introduction, that 5,180,980 multiplied by .67 cents per pound gives $347,125.66.

Q. For what particular plant or piece of machinery does that have reference?

A. To the 132nd Street holder. I stated yesterday those were the hypothetical dimensions of the 132nd Street holder.

Q. Then this is an estimate on the 132nd Street holder?

A. Of a holder of the same size. In this instance a little bit lighter.

Q. Does that purport to give the amounts paid for the various materials used in that holder?

A. Not at all. It is a detailed estimate upon which is based the final price at so many cents per pound, to which I have testified in my testimony, and I will give you the figures in detail how the price of a pound was made up, and I can do it again now, if you want it.

Mr. BURR: I object to it as incompetent, immaterial and irrelevant.

The MASTER: Mr. Kirby's objection is withdrawn, do I understand?

Mr. KIRBY: Yes, I do not care one way or the other whether it is in or not.

6714 The MASTER: I will allow it.

Mr. BURR: Exception.

Received in evidence and marked Complainant's Exhibit 376.

Recross-examination by Mr. KIRBY:

Q. You spoke with reference to the weight of a tank at one of the stations to which you gave a weight of 90,000 pounds. How did you get that weight?

A. I had taken the measurement of the tank and estimated the weight in detail from those dimensions.

Q. Did you make those measurements?

A. They were made under my direction.

Q. And if Mr. Edgerton made his measurements I assume that you would consider that the difference lay in the accuracy of one man's measurements over the other, would you not?

A. They are in the accuracy of the measurements or the thickness of the metal or the calculations themselves; there are three chances of making error.

Q. I assume measurements made not only of dimensions but of thickness of metal?

A. Everything included.

Q. Have you the measurements of that tank?

A. No, not here. I had them all at the time I gave my testimony.

Q. Take the purifiers of the 42d Street works to which you give a weight of 675,720 pounds. How would you get the weights of those purifiers?

A. Those purifiers were measured and then an estimate taken from those that I referred to as having been made during the last twenty-five years of the same size purifiers corresponding to the measurements of the boxes in this instance.

Q. So that if Mr. Edgerton had measured the size of the
6715 purifier, the thickness of the material would enter therein, and would have made his measurements and multiplications correctly; would he not have been apt to have come to a more correct result than this which you obtained by comparison.

A. No, quite to the contrary. I am quite satisfied any results would have been incorrect. He is not familiar with the detail of construction and I am quite satisfied that he would probably leave out of the detailed estimate at least 25 per cent. of material that should be in it.

Q. How do you know that Mr. Edgerton is not familiar with the detailed construction of a purifier?

A. Because he has not constructed any to any large extent.

Q. Well, if he has constructed one, doesn't he know?

A. No, that is only a trial but not an experience upon which you can base the valuation of an apparatus.

Q. I am not talking about valuation, sir. I am talking of size and how they are made?

A. Well?

Q. And if a man builds one doesn't he know as well as if he built a dozen?

A. No.

Q. Though they are all the same, as you state?

A. No, he doesn't know. He does not. Every time he builds one it is quite a problem to figure the statical calculation and the sizes therefrom and ascertain the proper thickness of the plates.

Q. And how do you estimate it, by comparison?

A. I have taken the same size of purifier, the same hypothetical dimension of a purifier, and I know that is absolutely right and fits the occasion.

Q. That is quite true——

A. There is no comparison about it. It is an absolute detailed estimate for that situation; no comparison.

Q. Now, therefore, if Mr. Edgerton measures the size and dimensions of the material going to make up those purifier boxes
6716 has he not the data upon which he can base his estimate?

A. I venture to say that if Mr. Edgerton would do so it would take him not less than a week to make an estimate of one set of purifiers, and then I do not believe he would have everything in there that belongs in it.

Q. Let us take your holder at 42nd Street. How did you get the weight of that holder?

The MASTER: If you are going on in this way we will adjourn now till 9:30 o'clock tomorrow morning.

Mr. KIRBY: I do not desire to go into this. I would not have gone into it.

The MASTER: I am not complaining of you. You have a right to recross-examine, but are apparently starting out now on a line of examination that will consume quite some time.

Mr. KIRBY: It will, of necessity, not because I want to.

At 6.10 P. M. adjourned to February 1st, 1907, at 9.30 A. M.

Last Exhibits:

Complainant's, 376.
State's, OO.
City's, 236.

6717 Circuit Court of the United States, Southern District of New York.

CONSOLIDATED GAS COMPANY OF NEW YORK, Complainant,

vs.

JULIUS M. MAYER, as Attorney General of the State of New York; WILLIAM TRAVERS JEROME, as District Attorney of New York County; FREDERICK E. GUNNISON, JOHN C. DAVIES, and LUCIAN L. SHEDDEN, Constituting the New York State Commission of Gas and Electricity, and THE CITY OF NEW YORK, Defendants.

Before Arthur H. Masten, Special Master.

NEW YORK, *February* 1, 1907.

Met pursuant to adjournment.

Present: The Master, Mr. Mathewson, Mr. Kirby, Mr. Burr.

6718 FREDERICK J. MAYER resumed the stand and further testified:

Cross-examination by Mr. KIRBY (continued):

Q. Last evening you were speaking of the purifier boxes at 42nd Street, of which you gave the weight, as estimated by you, 675,720 pounds. I have before me the description of the apparatus for the 42nd Street station, furnished in the manner noted by Mr. Mathew-

son yesterday, and I ask you if the boxes, the description of which I now read, are those of which you gave the weights just mentioned?

Mr. MATHEWSON: Take your own memorandum and see if it is accurate, Mr. Mayer.

The WITNESS: Is that 42nd Street?

Mr. KIRBY: Yes, the ones of which you gave the weight yesterday.

Q. I read from the description:

"Eight purifier boxes, 20 feet by 3 feet deep by 22 feet, 24 inch by 4 inch cups;

Two layers of trays, connections and supports;

Eight W. I. covers, 20 feet by 22 feet by 3 feet 6 inch boxes."

Is that the description which you used in making your calculation of weight?

A. That is right.

Q. Now, have you the details giving the size of the iron work going to make up those boxes?

A. No, I have not those details now; I did have them last summer at the time I made my valuation. This is 42nd Street. If I remember correctly, I built those boxes myself. I think in this instance they are likely to be the actual shipping weight. That was formerly the Metropolitan Company, and I believe I built those boxes myself.

6719 Q. Are you prepared to state whether or not you took the sizes of the various materials going to make up these boxes from actual measurement of the same as the box appears, or from drawings or specifications which you may have had in your possession, or obtained from some one?

A. The actual measurements were taken first by a man competent and familiar with the details of such boxes, under my direct supervision. Those measurements were then used in selecting the detailed estimate amongst thousands of estimates that fit these particular boxes, or boxes of the same dimensions. From those detailed estimates, which were made by myself or under my direct supervision within the last twenty-five years, the detailed weights were arrived at. All those details I had here last summer at the time I made my valuation.

Q. So that it was possible -or your assistants to measure the dimensions as set down here, and not only to measure their dimensions, but to measure the thickness of the material used in the construction of those boxes?

A. Yes, it was.

Q. Do I understand you to say that it would have been impossible for Mr. Edgerton to have also made those measurements of thickness?

A. I say it would have been impossible for him to do that in every instance, in the fifty hours that he spent at the works.

Q. I didn't ask you that. I asked you if as to those particular boxes, of which you have given the weights and to which you have made reference, it would have been impossible for Mr. Edgerton to have measured the thickness of the material?

A. No, not if he did not spend any time anywhere else except on those boxes; he might have measured that particular set of boxes, but not the other apparatus which he claims he did.

6720 Q. You measured each purifier box in every plant?

A. Each and every one purifier box, and every other apparatus in each and every plant.

Q. And the thickness of the material going to make up each purifier box in each and every plant?

A. Where an apparatus was not enclosed it was measured; and where it was enclosed entirely you cannot measure it.

Q. You did not take, say, a purifier box of the same dimensions which might be at some other plant, and having applied a weight and value to the first purifier box which you measured, and, taking the thickness of the material, apply the same weight and measurements to the other one which was of the same size?

A. Not at all, Mr. Kirby. I just told you that these weights were selected from thousands of estimates prepared within the last twenty-five years either by myself or under my supervision.

Q. Did it happen in any instance that this estimate that you selected was for more than one purifier box?

A. Yes, of course, if a purifier box is of the same dimensions it is applicable under the same conditions, and these estimates are correct in detail, for the simple reason that a cubic foot or a cubic inch of iron twenty-five years ago did not weigh any more than it does weigh to-day?

Q. But twenty-five years ago it might have been that they used more material in purifier boxes than they do to-day, might it not?

A. And that is taken care of by the detailed estimates which have been *been* made, as I said before, by me or under my direction for the last twentyfive years, as compared with estimates made at a more recent date. I told you that it was selected from thousands of estimates.

Q. Quite so; a purifier box erected to-day might have an

6721 entirely different weight, though, from one that was erected twenty-five years ago?

A. It is possible, of course, depending upon the size and detail of construction, upon which I dwelt so forcibly last night before we left.

Q. Do I understand you to say that it is your opinion that with all the dimensions of a purifier box, together with the thickness of both the wrought and the cast iron, the width and depth of the cups, the width and the thickness of the flanges, the length and sizes of the T-iron supporting the covers, and the length, number and sizes of the T-iron supporting the trays, that it would have been impossible for Mr. Edgerton with his experience in the gas business, as it has been set down in this record, both in designing, constructing and operating works, to correctly calculate the weight of this purifier box?

A. If this purifier box was in use he had no chance to go inside of it and measure anything pertaining to the inside of it.

Mr. MATHEWSON: Supposing he had all those dimensions?

A. (Continuing:) If he had all the dimensions and had not omitted any, he probably could make a correct estimate of the weight.

Q. How would he get the inside dimensions?

A. By going inside the box.

Q. Suppose the covers had been lifted?

A. Then he had access to the interior of the box.

Q. Don't you know that the covers were lifted for him?

A. I do not, but I know from his estimate that he did not include the value of any trays or any supports for the trays.

Q. How do you know that?

A. Because it don't appear in his estimate.

6722 Q. Have you seen the details of his estimate?

A. No, he has not shown it.

Q. Then how do you know?

A. Because he has not mentioned it. He has used so many cents per pound, and he cannot do that unless he has got sufficient practical knowledge to apply it.

Q. Don't you consider that a man of his experience has practical enough knowledge to measure the dimensions of a purifier box?

A. I know he has not sufficient practical experience to include the cost of the trays and supports for the trays on a per pound price. It is only a practical man who has been long years in the business who has sufficient knowledge to know how such factors can be applied.

Q. And you do not consider that his experience in the business is sufficient for him to measure up the exterior and interior of a purifier box?

Mr. MATHEWSON: He did not say so.

A. That is not the question; that is not what I said. I said his practical experience is such, what is not based upon any assumption, but upon my actual knowledge for a great many years, and I know he has not sufficient familiarity with the details of construction as would enable him to incorporate the values of trays and tray supports on a per pound price. He does not know how to apply it.

Q. Not if he had made a detailed examination of the interior?

A. No, it is a question of practical experience to apply such factors.

Q. Do you consider that a purifying box is a very complicated piece of apparatus?

A. Not to a constructing engineer. It might be to a man who occupies the standpoint of a buyer, for instance, but not to a constructing engineer. As a buyer he might buy the cheapest,

6723 but it would prove the most expensive in the end, because there would be so many omisions that would have to be furnished afterwards that the total cost would be the same as if he had accepted the highest price submitted.

Q. But when you buy a purifying box you buy it complete, don't you?

A. That depends on the specifications accompanying the bid. If you buy from irresponsible people you will have to buy a lot of things afterwards.

Q. I call your attention to some diagrams set down upon pages 143, 144, 145 of "Newbigging's Handbook for Practical Engineers," and I ask you if you will point out to me the complicated parts of a purifier box.

A. I have not stated that the construction of a purifier was complicated. I will say that it might be complicated to an inexperienced man such as a buyer, but it is not complicated to a constructing engineer. And right here in this instance I want to say that there are no tray supports and no trays shown; as I said before, Mr. Edgerton omitted them in his estimate.

Q. Look at page 141, and I think you will see a section which shows the trays.

A. That is a different section from what you showed me. In this one it is included and in the other one it was omitted.

Q. I mentioned three pages and you failed to take notice of any but the first page.

A. As I said before, Mr. Kirby, to the eye of a constructing engineer familiar with the details of construction of course it is apparent at once, but to the eye of an inexperienced man, such as a buyer, it is not.

Q. On page 141 is a section through a purifier box, is it not?

A. Yes.

Q. The horizontal lines there indicate trays, do they not?

A. Yes.

Q. Is there anything very complicated in that?

A. There is nothing complicated to me, anywhere, in any of those places.

6724 Q. Page 144 I show you another section which is the box with the tray left out, and the carrying carriage and the hoist by which the box is lifted. I asked you if there is anything very complicated in that.

A. Now, as to that, when you get right down to the point of detail of construction there is more complication in this little picture than it appears to possess, to the eye of a man that don't know.

Q. I can believe that.

A. I venture to say right now that Mr. Edgerton does not know how large to make the bottom plate, just one bottom plate of a purifier, so as to take care of the cooling strains that exist in the process of cooling in the mould, which enter into consideration as a factor to resist pressure. That is a complication that he does not know.

Q. Don't the pattern makers have a scale which allows for contraction and expansion?

A. You do not understand my remarks. I am talking about shrinkage strains which occur in the casting, during the process of cooling in the mould.

Mr. MATHEWSON: Not the reduction of the size?

A. (Continuing:) The pattern maker does not know that; he has nothing to do with that. It is a question for the constructing engineer to decide that.

Q. Then there is no method of measuring the thickness of that bottom plate?

A. A method of measuring it? Certainly you can measure anything that is accessible. In connection with my remarks I want to add that the cooling strains have to be taken care of, in the dimensioning and sizing of the plate, and the ribbing and the thickness of the plates, to prevent its cracking when in operation. It is
6725 a well-known fact that bottom plates in purifiers have cracked from apparently unaccountable causes. If you take our purifier bottoms you will find that there are no cracks. This is attributable to these details which appear to you as being not in existence.

Q. No; this being what you designate now as your purifier box, I presume it would have all those strengthening materials that you mentioned.

A. Yes it would.

Q. And one who had an opportunity to examine should observe that in his examination, should he not?

A. If they were there, yes, he should find them.

Q. And if they were not there they ought not naturally to be included in the estimate of the value of the box?

A. Certainly not.

Q. I ask if you consider that these figures with the dimensions are such as will set down upon the box?

Mr. MATHEWSON: The dimensions of the covers?

Mr. KIRBY: 8 wrought iron covers, 20 x 22, with 24 inch x 4 inch cups, etc.

A. There is always an allowance for a variation of the cups around the boxes, and in designating the size of the cover, you always refer to the size of the box. It is common with all constructing engineers.

Q. If Mr. Edgerton in making measurements ascertains that the covers were of greater dimensions than set down here, and so calculated them he would not be in error, would he?

A. That is not in error in either direction. The covers for 4 inch cups are always 5 inches larger in each direction than the
6726 box, and the size of the covers always refers to the size of the box.

Q. So that the dimensions given here for covers are not in fact the true dimensions?

A. Yes, they are, because the constructing engineer always adds half the size of the cup for the cover.

Q. But the weight of material in these covers, you would have to use larger dimensious than are set down in this schedule, would you not?

A. No, for the constructing engineer handling it, knows just exactly how to apply that difference, which I do in every instance. Besides I think you will find the covers for boxes. I think you will find it reads. It does not say eight covers so and so big.

Q. And such covers would be larger in size than the boxes?

A. Yes, by five inches—half the width of the cup.

Q. So that taking their dimensions you do not think it would be correct rather than taking the dimensions as set down?

A. I did not set down the dimensions of the cover. I said the covers for such size boxes.

Q. If you will listen until I have finished my question you will not be led into error?

A. You asked about the size of the cover given there. I did not give the size of the cover. I gave the size of cover for such size boxes.

Mr. MATHEWSON: This inventory was made by you for your own purposes, was it not?

The WITNESS: Certainly.

Mr. MATHEWSON: Not to be delivered to anybody else?

The WITNESS: Certainly not, every constructing engineer of gas works knows how to apply such dimensions.

6727 Q. Have you the details of the foundations under those purifier boxes?

A. No, I haven't got them now, I had them all last summer.

Q. The foundation as indicated in Newbigging's—can you give a general idea?

A. Not at all; foundations in every instance would differ from those under other conditions.

Q. I am asking you how this condition at 42nd Street compares with that down here?

A. Not at all; that is merely an assumption. That is based upon nothing; it is a sketch.

Q. I want you to tell me, inasmuch as you have not your details here, how the foundations are situated at 42nd Street?

A. They are piled.

Q. The foundations are piled, and the supports for the purifying boxes?

A. They are piled.

Q. Piled below the foundations?

A. Below the column foundations.

Q. They come up to the columns?

A. Yes.

Q. Are the columns in any way similar to this sketch?

A. Well, a column is a column, and there is not a great deal of variance in the appearance of a cast iron column; they look pretty near all alike.

Q. And the columns as placed under the purifying boxes, disregarding the question of piling, are similarly placed in this sketch to what they are in 42nd Street?

A. Not at all; it has got no bearing upon that at all, on 42nd Street, and it does not admit of any comparison.

Q. Are there more columns?

A. Mr. Kirby, it is impossible to say that off-hand, by comparing it with a sketch and a book which does not refer to any particular job at all.

Q. I am very anxious to get at the truth, and you have not your details here?

A. If I had my details here I would not be able to tell you

6728 that. I would have to have the plan of the building to find that out.

Q. You haven't that plan, have you?

A. Not now. I have not. It is a well-known fact that in modern construction the number of columns is reduced to a minimum, and in fact I have executed a great many constructions without any columns. Instead of using them, I have put the weight in the supporting girders, which extend from side wall to side wall of the building.

Q. You do not remember how many columns there are under these purifying boxes, if any, do you?

A. No, I couldn't tell you that now.

Q. Now, you spoke of the bulging of the walls of the building at 14th Street. Does this bulging show a settlement of the walls?

A. It absolutely indicates it.

Q. Now, if those walls settled, why is it that the piping running from that building or into it was not broken?

A. I did not say it was not broken; it might have been broken and repaired.

Q. If a wall settles in that way does it break the pipes entering or leaving the building?

A. It undoubtedly would if there was sufficient settlement. I have known that to occur in many instances.

Q. Would a most minute settlement, say 1-16 of an inch?

A. It depends on the limit of elasticity of the pipe connections as to how long it would be before the fracture would occur.

Q. Are pipes running in and out of buildings in gasworks so placed that they will be able to compensate for a slight settling?

A. They are.

Q. And in running through walls, is it not the custom to leave a small space around so that a settlement or variance in the relative position of the wall, if small, will not disturb the pipe?

A. That is true.

6729 Q. You have placed in evidence Complainant's Exhibit 376, detailed estimated weights of 5,000,000 cubic feet holder, and stated that the details set down in this exhibit are necessary to be obtained in calculating the weight, and from the weight the value of a gas holder. Is that correct?

A. That is right.

Q. Now, does this detail include not only the tanks proper and the framing, but also any internal framing which may be in the holder?

A. Everything and anything belonging to that holder from beginning to end and from start to finish.

Q. Am I right in assuming that some of these articles set down under the heading "Flange Steel" are for the interior framing of the holder, or if not, will you point out to me such material?

A. Yes, in this instance it is. It belongs to the vertical stiffeners of the second section.

Q. And there is distributed throughout the schedule all the material which there is in any one of the holders?

A. Yes, the entire material is set down from beginning to end of construction.

Q. Will you tell me which holders of the Consolidated Gas Company you have the same details for as are set down in this Exhibit No. 377?

A. I cannot tell you from memory, but a large majority; within the last six or eight years nobody but Bartlett, Hayward & Company has built any holders in New York or Brooklyn.

Q. Outside of the holders erected within the last six or eight years?

A. A great many estimates of the other holders, yes, just how many I cannot tell you.

Q. Let us take up the holders of the various stations? Have you the details of construction of the holder at 132d Street.

A. That is the one (indicating) or one of the same size.

6730 Q. By that you mean the estimate set down in Complainant's Exhibit No. 379?

A. Yes, sir.

Q. And the holders at 65th Street?

Mr. MATHEWSON: You mean has he identified the 65th Street?

Mr. KIRBY: Yes.

A. Yes, I believe I built the 65th Street holders.

Q. In coming to your appraisal of that holder, you prepared a schedule such as this?

A. I took my weights from such a detailed estimate such as that.

Q. And did you do the same thing with the holders at 65th Street?

A. Yes, I did, I built those.

Q. Did you take the weights in the same way of the holders at 44th Street?

A. In every instance.

Q. And at 42d Street?

A. In every instance. I built the four holders at 42d Street.

Q. And 18th Street?

A. There are only two holders. Yes, they were taken from detailed estimates.

Q. When were those 18th Street holders erected?

A. I do not remember, but it was a good many years ago.

Q. And from what source did you get the detailed estimate?

A. The same source as I got that.

Q. From the builders?

A. From my own estimates made within the last twenty-five or thirty years, of the same size holders.

Q. Then, it was not for the identical holder there to-day?

A. If the dimensions agreed with those, or my detailed estimate, it is the identical holder. As I said before, it did not make any difference whether it was made twenty-five years ago or made to-day.

Q. Is it not a fact that you can take an estimate for holders

6731 of exactly the same size and same capacity, and that then when erected one will weigh more or less than the other?

A. Slightly, due to the difference between the weight of the purchase weight of the material and the actual shipping weight after

the material has been manufactured. That difference varies from—well, it amounts to about 3½ per cent.

Q. So that the holders which you did not have the actual details of, and of which you took the details by comparison, might differ by that percentage?

A. No, that percentage is a difference which exists in all holders. Where I did not have the details in my estimate I made new details for such conditions.

Q. How could you make new details if you did not know the construction of the holders?

A. I could see the construction of the holder. I took the pressure of the holder, for the weight of the holder, and then measured the details for the guide frame.

Q. Did that carry out the statement which you have made in connection with the details of construction of the holder? When you took the pressure of it did that give you the internal framing?

A. No, sir.

Q. You did not know the details then?

A. In this instance, no; the weight of the holder was estimated by pressure, but I say in most instances I had detailed estimates and did not have to take the pressure.

Q. How is that about 18th Street, do you remember?

A. No, I cannot recall that.

Q. How is it in regard to 14th Street?

A. In 14th Sreet I believe I took the pressure, but I would not be sure about that, there are so many estimates; it is impossible for me to remember that, when I made that about seven months ago, in all this multitude of figures.

6732 Q. How about 23rd Street?

A. What I said about one applies to all. Wherever I had a detailed estimate of the exact holder, which was the case in a great many instances, I took that detailed estimate. Where that was not the case I did make estimates from such weights and measurements as I was able to obtain.

Q. And what weights and measurements were you able to obtain, and in what way did you obtain them?

A. By sending my man there and going there myself, and by directing them how to take the measurements and telling them what measurements I wanted. When they reported to me I telephoned to Baltimore to find whether they had an estimate to cover that situation.

Q. Did you measure the height of the guide frame and the thickness of the material entering into it?

A. Everything.

Q. Did you take the pressure on the holder?

A. Everything.

Q. And from those dimensions and from that pressure you calculated the weight of that holder and your guide frame?

A. And compared it for verification with the estimate in existence at Bartlett, Hayward & Company's office, which estimates were made under my direction for the last twenty-five years, in order to be sure that my calculations were correct.

Q. And to that weight you applied a unit figure which you had previously determined upon and which you have spoken of in your direct testimony?

A. Yes.

Q. Yesterday you mentioned certain sheets, some of which you had examined and some of which you had not examined, which sheets are those furnished by me to counsel for complainant?

6733 Mr. MATHEWSON: I did not ask him on redirect about any of them, nothing at all.

Mr. KIRBY: It was on redirect that you offered one.

Mr. MATHEWSON: No, I merely asked for 132d Street, which had already been testified to. I asked for it at the end of the case and I offered it, but it had no relation to his examination, and I shall object to going into this question, as I think it is a consumption of time.

Mr. KIRBY: The consumption of time will consist in offering all those sheets in evidence. I simply want to identify them.

Mr. MATHEWSON: I don't know how you can offer them in evidence, your case being closed. I think you should have offered them before, and I shall not consent to that. That may mean days of further examination by me of witnesses, and going over them.

Mr. KIRBY: I will make the offer and then make my argument.

Q. I show you a statement headed 14th Street station, a lot of yellow sheets upon which there are certain writings, figures and dimensions and what not. I show you the same thing in an envelope headed 42d Street plant, 44th Street plant, 18th Street plant, 21st Street station, 163d Street station, 199th Street station and 111th Street station; also Inwood station. I ask you if these are not the envelopes and the contents thereof which you make reference in your testimony as having been looked over in part by you, and from which envelope headed 132d Street station the entries have not been taken out, but were yesterday placed in evidence in this case by Mr. Mathewson?

A. I am absolutely unable to tell. I had such envelopes
6734 but I cannot tell whether they are in the same condition as when I had them, because my reference yesterday to omissions and errors may have been corrected since that for all I know. I cannot tell whether they are the same papers or not.

Mr. MATHEWSON: You did not examine them anyway, did you?

The WITNESS: No, the space of time was entirely too short; I could not do that and I could not tell whether they are the same papers or not.

Q. You made such a close examination of them that you are not able to tell whether they are?

A. I said yesterday that the time was too short, but in that time those that I did examine I found that they were so full of errors and omissions that I took it for granted that they were all on the same basis and were of no value.

Mr. KIRBY: By reason of the statement of the witness, and more particularly by reason of the fact that yesterday Mr. Mathewson

placed in evidence over our objection these sheets for the 132d Street station, I here offer, so that instead of having a part of what is a complete statement, which may be worth much or little, we may have it complete, the sheets for the other stations. I call attention to the fact that on page 5385 of the testimony, being the testimony for January 9th, a statement was made by me in reference to these sheets, as follows:

(Here Mr. Kirby quotes from the record at the page mentioned, which was ordered not to be spread upon the record.)

Mr. KIRBY: I was prepared to offer all of these statements at that time, and acting upon the suggestion of the Master I had
6735 them marked for identification. Now, I contend it is improper to place in evidence here as an exhibit any one of these exhibits without placing them all in. As I stated at that time, and as I inferred yesterday, they are nothing but memoranda subject to the explanation of the man who made them, and without such explanation, as I then stated, can have but very little value. Having been taken advantage of in any one instance by the complainant I certainly consider that the others should go in and that that should be stricken out as an exhibit; either that, or else they should all go in together.

Mr. MATHEWSON: Mr. Kirby entirely misconceives the situation. The only papers which I offered were the details in reference to the 132nd Street station and no other station. Now, if Mr. Kirby will refer to the record he will see that I took these very sheets when Mr. Edgarton was on the stand, and asked Mr. Edgarton as to every one of the details making up the $21,160, and I asked him whether he had included profit in the first item, the cost of brick, or whatever it was. No, he had not. I asked him whether he had included profit in the cost of carriage, and he said he had or had not. I said "Take up the cement floors $520." He answered, "I can shorten that by saying that the contractor's profit, so far as my information goes, will be included only in the brickwork and he will save that concrete work."

Now, I have simply offered these sheets in order that being printed, it may be intelligible to the Court that the figures with which I was dealing, and the sheets upon which I was examining the wit-
6736 ness, were in reference to that particular station; nothing more and nothing less.

Of course, if any paper were produced by the defendant which would tend to rebut the accuracy of the defendant's testimony, as that paper would, showing that he had not included any profit in the purchase of his brick or other material, it would be quite pertinent for me, he having presented it, to offer it as the very last thing in my case, with no witness on the stand at all. It is marked for identification, and if these papers were desired to be offered as to the other stations by the counsel for defendants at that time, and they had been admitted, my witness would then have examined those particular papers as to those other stations and would have been prepared to testify to their correctness or incorrectness, no matter what time it might take; but to put them in now after their case is closed, merely

because I offered papers which have been referred to in the examination of the witness and gone over in detail as to the 132nd Street station, would simply put me back where I would have to take up these papers and spend days on them in examination to perhaps rebut them. It seems to me perfectly clear that it is most competent for me to offer that paper and incompentent for defendant's counsel at this stage to offer these other papers respecting which I have said nothing. I will say this, that if the counsel have any question about it, this can be marked for identification and printed. I would be just as willing to have it marked for identification as anything else.

6737 The MASTER: Where is the place this was offered in evidence?

Mr. BURR: It is in yesterday's proceedings which have not been printed yet.

The MASTER: I remember pretty well what took place.

Mr. KIRBY: The whole testimony carries an entirely wrong inference.

The MASTER: I will exclude these and give you an exception.

Mr. KIRBY: Then I here move to strike out the exhibit which was admitted yesterday, on the ground that it is improperly admitted unless all are placed in evidence.

Mr. MATHEWSON: I am perfectly willing to have this printed so it can be referred to as a part of this record, as an exhibit for identification for that purpose, if you wish.

The MASTER: That probably answers the purpose.

Mr. KIRBY: No, I want to have them all to have the same strength in the case. I do not want in the case an exhibit which has no right there unless it is connected with all the other sheets for the other stations.

The MASTER: Do you imagine the Appellate Court is going to spend any time looking over these details?

Mr. KIRBY: They will on an exhibit in the case.

Mr. MATHEWSON: If you will give me time to rebut these papers and go over them and give testimony in regard to them, I would have no objection to their going in.

The MASTER: I have disposed of the matter. I think the
6738 suggestion made by Mr. Mathewson, that they should be printed, the expense of that coming out of his client, in part, covers the whole thing. If there is any error in excluding them you will get the benefit of that.

Mr. KIRBY: They are marked for identification. I do not care whether they are printed or not. They are always subject to our use, marked for identification.

The MASTER: But the Supreme Court will not pay any attention to them unless they are in the record.

Mr. MATHEWSON: I am perfectly willing to have the paper I offered yesterday printed as an exhibit for identification for reference, to make this intelligible in the testimony, instead of being offered as an evidence as proof of anything.

The MASTER: That answers your question, Mr. Kirby.

Mr. MATHEWSON: But I cannot consent to printing all of these other papers.

The MASTER: Very well, we are all in harmony.

Mr. KIRBY: So that there may be no controversy about tampering, such as Mr. Mayer suggested, in regard to these schedules, I would like to have them marked in some way.

The MASTER: They have already been marked.

Redirect examination by Mr. MATHEWSON:

Q. Did you have all the details of computation at hand when you were called to testify last summer, when you were examined here?

A. I had, and I was continuously telephoning to Baltimore, and even taking trips to Baltimore twice a week, sometimes taking the night train and coming back the next night.

6739 Q. Bartlett, Hayward & Company are the custodians of these, are they?

A. Yes.

Q. And they are in Baltimore?

A. Yes.

Q. And since last summer you have moved your office and cleaned up generally?

A. Both my Baltimore and New York offices were moved since then.

Q. Do I understand, in reference to a holder which you did not build, that after taking measurements of the holder, for instance, or other apparatus, you then went to Bartlett, Hayward & Company's estimates to see if they had built a holder or other apparatus of these dimensions?

A. Yes.

Q. And if you found that, you took that weight?

A. I did.

Q. And if you did not?

A. Where they differed from the dimensions taken actually in buildings, then the weights were estimated in detail.

By Mr. BURR:

Q. Where is your office now?

A. My New York office, in Park Row Building. My Baltimore office is in the Keyser Building.

ALEXANDER C. HUMPHREYS, recalled in rebuttal, testified as follows:

By Mr. MATHEWSON:

Q. At what period were you connected with the U. G. I. Company of Philadelphia?

A. From the first of 1885, January 2nd, to the latter part of 1894, almost exactly ten years.

Q. What was your position there?

A. First, superintendent of construction; almost immedi-
6740 ately general superintendent; finally, in charge of all the engineering details, of operating details, and finally all commercial details and sales of all plant.

Q. Mr. Edgarton in his testimony at page 3945 says that he was engineer and chemist from 1882 to 1891; and at page 3990 he says that he thinks he was as active as anybody connected with the U. G. I. Company. That covers the first six years of your administration there?

A. Yes.

Q. What is the fact as to that?

A. The facts are that practically Mr. Edgarton had nothing whatever to do with the engineering connected with the works of the U. G. I. Company, or with the operation, purchase, accounting, or any of the features that came under my direction, the only exception being one works or plant in which his process had been installed, namely, Pensacola. I will follow that up and try to get rid of an unpleasant subject at once. When I took charge of the U. G. I. Co. I was engaged as superintendent of construction with the understanding that I should be given general charge, after a short test. When I took charge the whole technical force that was given to me to do my work with was one draughtsman who had never been inside of a gas works before, so far as I could learn, and one constructor who had never erected anything but an oil gas bench. Within a month I was required to take charge of the operating works, North and South, and then, within a few months I was, on top of all my other duties, required to instruct a lawyer who had charge of one of our important patent suits, our other lawyer having died. It seemed to me that that duty would not have been put upon me if the company had been depending upon anybody else, except in an honorary way. Mr. Edgerton's title as engineer and chemist, as declared by the offi-
6741 cers of the company, was an honorary one, in connection with the fact that they have taken up some of his patents.

Q. Do you know, in fact, whether it was an honorary one during the six years since 1885 to 1891, while he was connected with the company?

A. If you could use that term to indicate a position where no specific duties were performed and where the holder of the position was not in regular attendance, but was frequently absent for months at a time.

Mr. BURR: I move to strike out "as declared by the officers of the company."

Mr. MATHEWSON: He was one of the officers.

The MASTER: Strike it out, in so far as it relates to that. This is a matter of personal knowledge.

Q. Was Mr. Edgerton consulted by you or did he confer with you from 1885 down to the time he left in 1891?

A. He did not.

Q. In reference to matters of policy or otherwise?

A. Not at all.

Q. He says that he left the U. G. I. Co. because he differed as to the policy of making a poisonous gas. What was the reason that he left, if you know?

A. Expiration of his contract.

Q. And at whose suggestion was that not renewed?

A. I do not know who originally suggested it.

Q. I will ask generally whether Mr. Edgerton was active in any practical way so far as the U. G. I. was concerned after you joined it in 1885?

Mr. BURR: I object to that as calling for a conclusion. He may state what he did.

Mr. MATHEWSON: In a practical way. I suppose that is a meaning that is intelligible to any one.

6742 Mr. BURR: I suppose it is, but he is entitled to give the details. It is merely a conclusion.

The MASTER: Let him state what he did as far as the witness knows.

A. Do you want to ask what he did?

Q. State what he did, so far as you have not already stated; if you have covered it, all right.

A. It would be difficult to state exactly what Mr. Edgerton did, as he, so far as I know, was not considered in the practical operation of the work of the company. He was consulted, no doubt, by some of the officers as to experimental work and the like, in which he was expert, but in practical matters was not.

Q. Had he anything to do with the purchase of pipe and material while he was there with the U. G. I. Company and he had his title?

A. Not at all; that purchasing agent was one of my assistants, and all large purchases passed through my hands for final decision.

Q. He also testified that he made a study of accounts, and took charge of accounts. Did Mr. Edgerton have anything to do with the accounts of the U. G. I. Company after you were there?

A. This is the very first intimation I have had of anything of the kind. When I took charge of the U. G. I. Company, if my recollection serves me, the only thing that could be considered as a return or form, or anything of that kind to be used in connection with the operation of the works, was a weekly report. Possibly Mr. Edgerton may have had something to do with getting that up, but I could not say; but the whole thing was a great surprise to me; this statement.

Mr. BURR: I move to strike that out.

The MASTER: Strike it out.

6743 Q. Were you in such a position that you would have known if he had had anything to do with keeping accounts or the method of the accounts?

A. During my administration?

Q. Yes.

A. Certainly, I directed it.

Q. Have you yourself ever had experience in accounting, or have you made a study of the subject?

A. I have. I entered the gas business through a secretarial position.

Q. Mr. Edgerton at page 3990 of the testimony states in substance that he made possible the use of heavy oil, such as intermediate. Do you understand that to be the fact, is that your information or knowledge?

A. No, it was quite contrary to my knowledge and belief. Undoubtedly Mr. Edgerton has done a large amount of experimenting in that direction, but as far as the U. G. I. was concerned, and so far as the general work which I know of in the gas business is concerned, I think it can be claimed that the development of plants for the use of heavy oils was done in the United Gas Improvement under my immediate direction, and resulted in the development of the so-called double superheated plant, the object being to develop a plant which would use an oil which was at that time almost a drug upon the market; and at the same time to develop a plant which would be elastic enough to use practically any kind of oil which could be bought the cheapest at the moment, with the additional feature that it was desirous of especially developing a heavy oil, as the heavy oils as a rule were at high flash points and therefore safer.

Q. I have asked you in reference to Mr. Edgerton's connection with the U. G. I. Company only because he himself stated it as part of his qualifications before proceeding with his testimony; he
6744 also additionally stated that he was connected with the Pensacola Company, and you have so stated. Was that a company which at that time was employing his so-called process of oil gas?

A. It was.

Q. Did you take charge of the Pensacola plant when he left it?

A. It came under my direction with the other works as soon as I assumed charge.

Q. When was that?

A. In 1885, my general charge; but being loaded down with work I endeavored as far as possible to place the work for that particular plant upon Mr. Edgerton, it being his process.

Q. The process was introduced at Pensacola about 1884, wasn't it?

A. Yes, about that.

Q. And when was it abandoned?

A. In 1896.

Q. Why was it abandoned?

A. Because it was wasteful, and also it was badly constructed in some directions.

Q. Mr. Edgerton has stated in some substance that this process has been displaced at plants where it has been in use in the United States, except at Danbury, on account of persuasions of promoters—that word being his. What is the fact, as you know, and as far as your knowledge goes?

A. I have already stated the facts in regard to Pensacola. It was abandoned because it was uneconomical as compared with the

other plants being operated by United Gas Improvement Company; and as each plant, as far as possible, was made to stand upon its own legs, we endeavored to make that plant in every way a success, and we got better results out of it in the years immediately succeeding the time that Mr. Edgerton had not been supposed to be looking out for it closely himself. The result was that it was somewhat improved, but by comparison it was still very poor, especially on oil.

6745 Q. What condition did you find the Pensacola works in when they were turned over?

A. When I commenced to go to Pensacola to look out for things I found they were in great trouble about contamination of the wells from leakage of the holder tank, and also from the tar being allowed to run out on the adjacent country, which was sand. I also found that there was no purification provided for, although the plant was there, but had not been started up. After that was started up we still had considerable trouble with the purification, and when I came to investigate it I found that my orders that were attached to the test slips for sulphureted hydrogen to the effect that a jet of gas passing five feet should be allowed to impinge upon a slip of paper saturated with acetate of lead. Mr. Edgerton had countermanded to the effect that the stream should be reduced to two feet an hour, because this was, so to speak, a two-foot process, and I had to show the superintendent that our problem had nothing to do with the size of the stream, that we were trying to find out whether there was any possibility of sulphuretted hydrogen developing, and not to take those instructions from Mr. Edgerton.

Q. As to the results of heavy oil, of which Mr. Edgerton states was just as good as high-grade oil, was what was disclosed at Pensacola incorporated in his process?

A. The general results showed them to be using about 140 pounds of fuel to the thousand, about ten gallons of naphtha per thousand, 35 candle power gas with a very very wide variation, som-times running as wide a variation as from 20 to 40 candle power, and showing about 3.5 candles to the gallon. In 1892 and 1893, the year succeeding Mr. Edgerton's departure from the company, although he had not much to do with Pensacola before that, showed 9.32

6746 gallons and 9.23, and they happened to average out exactly the same, 3.85 candles to the gallon. The repair item for works is interesting, showing for one year 12.36 cents and the next 14.14.

Q. What was the cost in the holder at Pensacola, if you have a note of it?

A. My recollection is considerably over a dollar. In 1892, $1.37.

Q. Were these results with 140 pounds of fuel and ten gallons of naphtha to the thousand and 3.5 candles to the gallon, good or bad results as compared with modern methods?

A. Very poor.

Q. Mr. Edgerton also referred to the New Orleans gas company as in the hands of a receiver, as having failed. Has the company

that owns and operates the New Orleans works been in the hands of a receiver so far as your information goes?

A. Not the immediate company; some holding company with which it was indirectly connected had some financial trouble; the gas company had always gone along and paid dividends.

Q. Mr. Edgerton testified at page 4017 that he invented the tower scrubber, which was taken to England and brought back here, and again claimed that he originated the tower scrubber and erected one at New Orleans in 1873, from plans made in 1871 or 1872. Is Mr. Edgerton correct in that?

A. No.

Q. What are the facts?

A. The great Beckton works in London commenced work in 1868, and they were gas making in 1870, including these scrubbers, but these were erected in Belfast as far back as 1860, and in Preston in 1867, and many of them were in use in the 60's.

Q. Mr. Edgerton testified at page 4849 that he introduced a system of compressed gas on railway cars first as early as 1871, and that this led finally to the use of the compression system as a
6747 means of distribution. Was 1871 the first use of compressed gas of the character which he described?

A. No.

Q. What is the fact in reference to that?

A. The Pintsch people in Germany were using it successfully back in 1877, and they had been experimenting in Germany on compressed gas for car illumination as far back as 1837.

Q. Now, Mr. Edgerton refers at various points to the laying of mains, and advocates laying them near the surface. Do you know any place in this country and in this latitude in which mains are laid as near the surface as possible instead of at a depth of several feet?

A. Not unless it is unavoidable on account of some obstruction or the like in this latitude.

Q. Have you any information which corroborates Mr. Edgerton, that they are laid at Faribault near the surface?

A. They are not.

Q. He referred to Baltimore and exposed pipes there, at page 4035 of the testimony. Now, you are a director of the Baltimore Company, are you not?

A I am, and largely interested.

Q. What is the fact as to that so-called exposed pipe?

A. That exposed pipe was exposed because we could not get it down under the surface; it went across the marsh, and was laid across the marsh and covered up as far as possible. It happens that the engineer of the Baltimore Company is a very warm advocate of putting his pipes under the ground, and he never would have put that pipe above he ground if he could have helped it. That was discussed, and I entered into this discussion as to how this pipe should be laid and the difficulties to be overcome.

Q. So the facts as to the way it was laid and the reasons for its laying are within your knowledge, are they?

A. They are.

6748 Q. Now, Mr. Edgerton expressed at page 4835 to 4837 that heavy oil is better than light oil, has more carbon and greater enriching power, and just as good a carrying capacity for the illuminants in suspension. What is your view on that subject?

A. It is an extremely broad statement to make, that an oil is a better illuminator because it has more carbon; it seems to me if we followed that out to its logical conclusion, we could say that powdered anthracite would be still better.

Q. It is pure carbon practically, is it not?

A. Yes, sir, or that a bituminous coal would be a better illuminator than cannel coal, having a larger amount of carbon than the cannel coal. Of course, the fact is that the carbon has to be kept in solution in the hydrogen, in the form of hydro-carbons, and the oils that are now supplied to the gas company, the heavy oils, do not carry their illuminating power to the burner as well as the oil we used to use. And that is unquestionably a fact that has been demonstrated by practice in later years. In other words, there are more of the condensable vapors in the gas made from these heavy oils than there used to be in the past.

Q. What is your knowledge, derived in the business, as to the efficiency of heavy oils as compared with light oils in carrying illuminants to the consumer?

A. You could not put that into percentages, because it would vary with the oils, and even from the same crude oil, an oil of the same specific gravity as another oil from that same crude oil might vary in that regard, depending upon the way in which the oil has been produced in the oil stills; and we made a series of very extensive tests in England not a great while ago, two or three years ago, on heavy oils, and they have not been giving such satisfac-
6749 tion to our clients as the oil previously purchased, and we found that those oils gave an efficiency of about 85 per cent. of the oil that had been used before that.

Q. Mr. Edgerton suggests that in cold weather with the heavy oils no more will be required, the heavy oils will do just as well, and he refers in his testimony to certain papers accompanied by letters from him which had been sent to Chief Engineer Bradley of the Consolidated Gas Company. Have you those letters with the papers attached?

A. I have.

Q. Does Mr. Edgerton in any of those papers say whether more oil is required in cold weather or not?

A. He does.

Q. Just quote what he does say on that subject.

A. I quote from the 7th page of the general statement, on the Danbury gas process, which accompanied the letters referred to, to Chief Engineer Bradley, something over a year ago, "were the above method carefully carried out it would give a very fair result; as carried out there was some times intervals of ten days between tests at Danbury on many occasions, thus giving an opportunity for the gas to sag in candle power, or rise above the mean in the spring season. Not only is more oil required in cold weather, but even with the in-

creased quantities shown in the record the gas would sag below standards, and this is particularly noticeable since the use of gas oil.

Q. Now, Mr. Edgerton also refers to the cost of gas——

A. If I might continue, please?

Q. Yes, very good.

A. "In order to weather the minimum standard points in bad weather, close haul and close to, the plant put in New Orleans and very closely watched for fouls from the poop deck of the City
6750 Hall during several months, the enclosed log or record is offered." It would seem to point to the fact that more watchfulness is required in bad weather.

Mr. KIRBY: That is an inference. I move to strike it out. Let the statement stand as it is.

The MASTER: Let it stand as it is.

Q. Now, is that all of that subject?

A. Yes.

Q. Now, Mr. Edgerton at page 4678 stated that the cost of gas as he was informed by the New Bedford people was something like twenty-four cents, that that was the information that he gained. Is that correct?

A. No, sir.

Q. Now, what is the fact as to the cost at New Bedford?

A. He has stated it was 38.65. It was reported, I think, 24 cents in a report made by the sliding scale commission, but through some mistake of the printer, probably, the distribution amount was put in the manufacturing column, and the manufacturing account was put in the distribution column, so that it does appear in that column that the gas was made for 25.4 per cent. An examination of the returns of the company show that that is not the fact.

Q. Well, Mr. Edgerton may have been misled by seeing that report?

A. I imagine that was the truth.

Q. Now, in order to confirm the reports of the company did you make any inquiries of the president of the company?

A. Yes, I had quite an extensive correspondence with the president.

Q. Did you find that your conclusion that you have now stated was correct or otherwise?

A. I found that conclusion was correct according to the president's statements. In fact, it was the president who pointed out to
6751 me how the error probably had occurred.

Q. Now, at page 4679, Mr. Edgerton refers to a mixed coal and water gas of 18 or 19 candle power, and this is a gas, is it not, which costs 38 cents?

A. It is.

Q. And it might be gathered from Mr. Edgerton's testimony that New Bedford made an unenriched coal gas from 18 to 19 candle power. Do you know whether that is the fact or not?

A. I know that is not the fact, that it is so made, and I gathered

from the testimony that is what Mr. Edgerton meant. I don't know whether he did mean it or not.

Q. However it is construed, the fact is as you have stated it?

A. Yes.

Q. At page 4754, Mr. Edgerton has stated that a depreciation is not a charge against the cost of gas, but a charge direct to profit and loss. In the papers which he sent the Chief Engineer, Bradley, and which you have here, how does he include depreciation, as a charge against the cost of gas or otherwise?

A. Included right in the cost of gas.

Q. What does he state is required for depreciation and repairs which the defendants criticize at even 10.89 in the case of the Consolidated Gas Company?

A. The statement that I have before me is not the unadjusted statement of cost, it is the statement on the basis of 17.6 candle power reduced.

Q. What do you mean by reduced?

A. On the Edgerton theory that one candle is as good as another, he takes the actual cost of the gas as made of a certain candle power and then says the cost is so much less according to the candle power to which he wishes to reduce it, and in this particular statement he reduces his gas to a candle power of 17.6 and then makes his cost conform to that. I have merely restored the original figures and
6752 on that basis—this 32.95, I think, candle power gas—the repairs and depreciation together foot up $14.96 *cents* a thousand.

Mr. KIRBY: Mr. Master, I object to this line of testimony and object to quotations from Mr. Edgerton's letters to Mr. Bradley, unless it be that all of the letters and the accompanying schedules be either read in evidence as to the contents of the letters received by Mr. Bradley or else placed in evidence as an exhibit. I don't think it is proper upon the record in this way part of a communication.

Mr. MATHEWSON: There is a good deal of it that does not relate to the points about which there is any controversy.

The MASTER: If you use this letter for the purpose of impeaching the witness, it ought to be produced.

Mr. MATHEWSON: Certainly, it is produced, it is right here, and the witness has it in his hand.

The MASTER: If there are enclosures and tables in it that it is not material to have spread upon the record, you can mark it for identification, but anything that is of sufficient importance to be put on record should be produced.

Q. (Handing papers.) Are these the letters to which you refer, the first being dated Danbury, November 22d, 1905, and second dated Danbury, November 30, 1905, with the papers attached, excluding, of course, any pencil memorandums you have put on them?

A. Yes, sir.

Mr. MATHEWSON: I ask that they be marked for identifica-
6753 tion.

Bundle of papers marked Complainant's Exhibit 377 for identification.

Q. Now, Mr. Edgerton, in these papers which have been marked Complainant's Exhibit 377 for identification, sets forth, does he not, various estimates in reference to the cost of making the oil gas according to his process, using one item or another?

A. These papers?

Q. Yes.

A. These papers show Mr. Edgerton's statement of the actual cost at Danbury in the year 1902-3. It is a selected statement, although the statement was dated and sent to Mr. Bradley March, 1905, apparently, or the statement was made then, it was sent to Mr. Bradley later, but it is for the year 1902-3, and purports to be an actual statement of the cost as it occurred. There are many results given for many other years, but that is the only one that covers actual cost.

Q. He gives certain results as to coal, oil, candle power and candle power per gallon from the year 1891 to 1905, does he not?

A. Yes, sir.

Q. Take the entire number of years, how many candles per gallon are produced, or how high is the candle power per gallon according to his own statement?

A. His statement shows the candle power from 1890 to 1904, and it seems to be an arithmetical average for those years of 34.89 candles.

Q. How many gallons per thousand?

A. 9.64. It figures out candles per gallon of 3.62.

Q. Now, during the entire period from 1891 to 1905, do you find that his candles per gallon rise above four?

Mr. BURR: I object to this. I do not think this is pertinent. I scarcely think we want to go into an inquiry at this late hour
6754 as to the methods adopted by Mr. Edgerton or by anybody connected with that company at that time.

Mr. MATHEWSON: I did not go into it. Mr. Edgerton was brought in and alleged that we ought to have a coal and oil gas process, and introduced figures reducing cost to something like 16 cents on his process, by assumptions of one kind and another, and I am going to show by his own statements that the candles of gas are much less than the Consolidated Company, and the next question will be whether a table has been made comparing the table which he here presented with the result, but inserting the actual results which he obtained in Danbury and showing the situation.

Mr. BURR: But that necessitates us to go into the circumstance which brought that about and therefore we would have to know all the circumstances.

Mr. KIRBY: This matter was before Mr. Mathewson at the time, and he referred to it in his examination of Mr. Edgerton, and if desired could have gone into it at length. It is not proper and I object to it on that ground, and I object to it on the further ground that you cannot take a letter which is not in evidence in the case and make comparisons from part of it and deductions by a witness, even assuming that he was the one to whom it was addressed.

The MASTER: I don't know that it is not Mr. Mathewson's intention to eventually offer it in evidence, or part of it, but on the question of rebuttal, do you claim that it is not proper for Mr.

Mathewson to show that one of your witnesses has made on some other occasion statements which are inconsistent with the
6755 statements which he made on your direct examination?

Mr. KIRBY: I certainly do not, but I do not see, Mr. Master, how by taking a statement as to which Mr. Edgerton has had no opportunity to say whether the conditions there vary, or whether they are the same as he assumed in making his computation——

The MASTER: That may all be. If he has given testimony along a certain line on his direct, and Mr. Mathewson claims he has writings emanating from Mr. Edgerton, which when examined will bring results entirely different from Mr. Edgerton's testimony, it would certainly be proper rebuttal. I cannot interrupt at this time until Mr. Mathewson has developed the lines to show how far it is material, or valuable, but that to my mind is what he is trying to get at, and unless you show me some stronger reason to the contrary I am inclined to let him proceed.

Mr. BURR: I submit the proper procedure was at the time, in order to enable this to be brought into rebuttal, to call Mr. Edgerton's attention to the letters and statements made, and ask him if he did not make the statements and give him an opportunity at that time to explain what gave rise to those letters and statements therein contained.

Mr. MATHEWSON: I did not know at that time that there were any such letters written. I only knew it when Mr. Edgerton, when I asked him if he did not send some letters to Maryland, volunteered the statement that he sent some to Chief Bradley, and I did not have the papers at that time.

6756 The MASTER: I will allow it.

Mr. BURR: Exception.

Mr. KIRBY: Exception.

Q. I asked whether during the entire period from 1891 to 1905, the results as he submitted them to Chief Bradley of his oil gas process as operated at Danbury exceeded four candles per gallon?

A. There is only one case where it would work out, and that is the year 1902, when he got 4.01.

Q. Well, the Consolidated, according to the testimony is how high per gallon?

A. For the moment I do not recall; I think it was between 5 and 5.60.

Q. Well, between 5 and 6?

A. Yes.

Q. Have you examined the table which Mr. Edgerton submitted here showing an estimate of the cost of oil gas mixed with a certain proportion of coal gas, according to the process that he advocates giving unit figures which he uses as cost of coal, etc.?

A. Yes.

Q. Have you taken that table and prepared a table in rebuttal, inserting instead of the figures which he used the actual figures which resulted according to his statement to Chief Bradley in the papers which are marked for identification?

A. Let me understand that question. You are now asking me

to show what would be the cost of candle power as in New York on the basis of Mr. Edgerton's Danbury statement?

Q. Yes.

A. Or to criticise Mr. Edgerton's statement as to the should-be cost in New York?

Q. Well, I want you to do both, but I will let you take the order.

A. I take Mr. Edgerton's statement of the cost of the Danbury gas of 32.95 candle power, and from that I prepare a statement according to the one-candle-power-being-as-good-as-another
6757 theory, of what it would cost for 24 candle power gas. I wish to have it distinctly understood, however, that I do not agree with the theory as applied to cost. It has some relation as to value to consumers. The cost of the 24 candle power gas prepared on this assumption by proportion would be $1.0254 or 102.54 cents. Now, in the same way I prepare a comparison with the New York—I should have stated, by the way, that that $1.02 is of course for everything, including management and everything, at the burner. This statement that I am now going to refer to I am just going to compare with manufacture as being more in line with Mr. Edgerton's statement for New York, and a better comparison.

Q. In other words, to compare the statement as to the cost of coal and oil gas, 28 candle power and 50 candle power.

—. ——.

Q. And the table which he presented, I think was at page 4683 of the testimony. Have you the page where he states that?

A. Page 5024-6. These statements prepared by Mr. Edgerton were on 14 candle power and 50 candle power. So as to arrive from that at a cost of the mixture, I have made up this statement to show what would be the cost of a 28 candle power made direct from gas on this Edgerton theory, which would be 65 cents, and 50 candle power would be $1.16, whereas, comparing Mr. Edgerton's statement for New York, instead of the 28 candle power being 65 cents it is estimated by him at 34.64 and the 50 candle power instead of being $1.16 is estimated at 48 cents.

Q. In reaching these highest figures, you took Mr. Edgerton's method of computation and tables, did you?

A. Yes, sir.

6758 Q. And inserted the cost of the items as stated by him to Chief Bradley, in 1905, as actually obtained at Danbury?

A. Yes. I have these tables, if you wish them.

Q. How would that affect the cost of his mixed coal and water gas?

A. Now, I have not made an estimate in every particular to correspond to Mr. Edgerton's statements, just referred to, of 14 candle power gas and 50. I have satisfied myself with simply criticising certain features of Mr. Edgerton's statement. I should want to take more time and considerably more study before putting myself on the record as to exactly what it would cost in detail to produce a mixed gas as covered by Mr. Edgerton's statement.

Q. Well, then proceed and point out such features as you desire in reference to his estimate?

A. First of all I wish to call attention to the fact that if we make

Mr. Edgerton's statement up in a little different shape for 14 candle power gas and add together the cost of coal and unloading, we have a cost per thousand of 28.431 cents. Now if we go down below and take up our residuals, we find the statement credit for residuals 31.83. These two totals, however, are not brought together for comparison in this statement.

Q. As the statement works out he would get for residuals——

A. A credit or minus quantity of 3.40 per thousand.

Q. That is he gets more for his residuals than the cost of the coal?

A. Yes, he would commence with no cost for his coal, which is something that is practically unheard of on the Atlantic coast. There have been a few isolated cases under exceptional conditions and in the west there have been other cases, especially in Cincinnati and Cleveland. I cannot say positively, but I do not think it
6759 is so even in those cities to-day where the conditions are very different. On the Atlantic seaboard it is almost unknown if not entirely so. It used to be found frequently to be the case in England, but is very infrequently so now. In the last year's report that came out there were only two cases reported in England, and those were Sheffield and Widnes.

Q. In the lake region of the west such as Cleveland in the making of coal gas, is not coal a good deal cheaper than it is in New York?

A. As a rule it runs cheaper.

Q. How about the price of the residuals?

A. As a rule the residuals run higher. There is a general tendency that way for the bituminous coal, the coal for coal gas making running lower and the net returns on residuals higher.

Q. From your knowledge of the gas business and as a gas operator familiar with eastern conditions, is it in your judgment possible to obtain from residuals in New York City three cents more than the coal originally cost?

A. A physical impossibility, or a financial, whatever you like to call it. It is an impossibility at present.

Q. Is there anything further?

A. Mr. Edgerton takes as a yield for this particular gas 11,648 feet to the long ton. You can squeeze out of the coal that much gas; it is doubtful if that yield would run as high as 14 candle power in the average; within certain limits it does not make much difference, whether you take a little more or little less gas out of the coal, you pay for it one way or another. If you strip the gas down closer, you get the lower candle power. For a 14 candle power gas I should be unwilling to estimate on more than 11,000 feet to the long ton, although you could obtain more. For instance, New Bedford
6760 was quoted as showing almost exceptional conditions as to efficiency, and they produce only 10,640 feet with the modern benches. Another criticism I would have as to repairs, where Mr. Edgerton only allows 3½ cents per thousand in spite of the fact that the labor is down to a low point, indicating the use, as of course you would use, of a large amount of labor saving machinery. One of the debits against the saving on labor in that case is the extra repairs to the machinery. My judgment is that in modern coal gas works

with labor saving devices carried to the maximum, 5 cents per thousand for repairs would be rather under than over.

Q. That is exclusive of renewals and depreciations?

A. Well, I was just going to add that I do not find anything in that for depreciation beyond this insufficient amount for repairs.

Q. And you find that in Mr. Edgerton's statement to Chief Bradley he did include depreciation?

A. Yes, in the Danbury one referred to, as I say, they both together amounted up to 14 cents and more, but of course, a very different plant. But, let me correct that a little, the 14.5 you know is in the total cost.

Q. The 14.96 you mean, don't you?

A. That takes in all repairs and depreciation in the cost of the gas.

Q. You mean 14.96 instead of 14.15?

A. Yes, I should say 14.96. That is not simply works repairs by any means. Mr. Edgerton did not mean that. I should correct some of the items, with the distinct understanding that I am not endeavoring to make a final statement of cost, but simply to correct the more glaring errors, as I take them to be, in Mr. Edgerton's statement. By allowing 11,000 cubic feet as all things being considered, as an economic result, $3.20 per ton would be 29.09
6761 cents. For unloading, I have accepted Mr. Edgerton's figures. I have tried to differ in as few places as possible without endorsing any of those which I include, but simply, as I say, picking up the ones which I think are glaringly out of the way. That brings unloading 1.02, making coal gross 30.11. On coke I allowed Mr. Edgerton's figure of 1182 pounds, but I took the average price of $3 per ton as I preferred to take the evidence of facts accomplished in New York rather than to take any estimate. We make from the coke 16.12 cents. Tar I take also on the same basis of what can be here recovered, 29.1 cents a ton, or 2.64 cents; ammonia happens to be practically the same. I also allowed a small amount for carbon that might be recovered .39, making 21.79 credit for residuals, and leaving net for coal, instead of a credit of 3.41, a charge of 8.32 per thousand. This makes a difference between us of 11.72 cents at once. I put in repairs and depreciation at 9.5 against Mr. Edgerton's 3.5, or a difference of 6 cents, bringing the difference up to 17.72 cents, which is to be added to Mr. Edgerton's cost of 7.12, bringing it up to 24.84.

6762 Q. For what candle power gas?

A. 14. Now, I have not attempted to deal with Mr. Edgerton's water gas cost for 50 candle power, but even accepting that——

Q. Oil gas was it not? Oil and water gas?

A. Water gas, it is the same thing, it is a water gas with really very little water gas in it. I presume that is what Mr. Edgerton meant, rich water gas. It is an enriched water gas, or a diluted oil gas, either way you want to put it. Now to make the mixture of 24 candle power we need 280 feet of the 50 candle power and 720 of the 14 candle power. Taking the 50 candle, 48.45 cents, Mr. Edgerton's

price, the cost would make 13.566 the 720 feet of the 14 candle power gas at 24.84 would make 17.885, which would show even with these corrections a cost of 24 candle power mixture at Astoria of 31.45.

Q. That would be assuming his cost of oil gas as estimated in his table?

A. Yes, sir, for the purposes of that calculation I accepted it.

Q. If you have the cost of oil gas as computed according to his actual results at Danbury as stated in his letter to Chief Engineer Bradley, and combine it with your coal gas as you have computed it, according to Mr. Edgerton's errors as you think they are, what would — give as the cost of the mixture?

A. If instead of accepting Mr. Edgerton's cost for 50 candle power gas as 48.45, we should take the cost as developed by the Edgerton theory from Danbury cost sheets, which brings a 50 candle power gas up to $1.16, we should have the 280 feet if my figures are
6763 correct, that are required in the mixture, costing alone 32.48 cents, and we should have a total cost of 50.37 cents in the holder.

Q. Some evidence was introduced as to the costs at Milwaukee, Detroit and Grand Rapids, or, rather, selling prices of gas there, and Mr. Carter made an estimate that on the same basis per candle power, that New York gas at the present candle power would cost something over $1.20, but I wish to ask you from your familiarity with conditions and operations of plants in various parts of the country, whether you would consider it possible to achieve the same results in New York City as to cost of gas as can be achieved in the Lake region to which I have reference and in which those cities are located?

A. As a general proposition, no.

Q. I will ask you whether you think it possible to make any comparison or to draw any deductions as to the price in New York, or the prices charged in those cities, without a complete analysis of accounts and costs of other items?

A. It would have to be made with an expert analysis, and when I say expert I mean expert both from the operating standpoint and the accountant's standpoint; an analysis other than that would not be of any special value. We would have to know as to the exact classification of all the items.

Q. Have you read Mr. Edgerton's testimony or have you heard it in reference to his suggested high pressure system for New York?

A. I have.

Q. What have you to say as to his statement that he has specified, that the pressures could not only be controlled within a variation of an inch and a half but possibly one-fifth of that which, would be .3 of an inch?

A. I think it is about as far from being correct as it could be.

6764 Q. Have you ever been able to realize, or even known any case where such result has been experienced?

A. Not operating to any extent at all. Where you have any such variation you would have to have the consumption cut down practically to nothing.

Q. Do you know of any city in which gas is carried through the

congested portions of the city and delivered to the distributing mains in the city under a pressure of 20 or 30 pounds?

A. I know of only one case that could be brought in under that description, and there you would have to study conditions pretty carefully. That is New Orleans. They do run a high pressure, but I think it runs at thirty pounds. It was not, however, put in to equalize pressures as far as the city was concerned, but was put in to carry gas to districts which were troubled by low pressure rather than by variation of pressure, and the effort has been made to carry that pipe through districts not as thickly settled. I know of no other case where the high pressure pipes for illuminating gas are being carried through the city.

Q. Was it your information that in New Orleans the pipes are used as general supply pipes running back and forth through the congested parts of the city for the purpose of supplying those congested sections?

Mr. BURR: I must again object to Mr. Mathewson leading the witness. Dr. Humphreys can clearly state what he finds to be the condition or what his information is, but Mr. Mathewson says "don't you find" and "isn't it your information" that such and such conditions exist? If it is continued by Mr. Mathewson I must object to it.

6765 Q. I will simply ask you this question further, whether you would consider it wise or safe to install a system operating mains up and down each side of the City of New York, as indicated by Mr. Edgerton, under a pressure of from twenty to thirty pounds, through the congested parts they would traverse?

Mr. BURR: Objected to as calling for a conclusion.
Question allowed. Exception.

A. I should consider it most hazardous and unsafe; I would not for a moment take the responsibility of recommending such a course; and on top of that I should consider it unnecessary.

Q. Mr. Edgerton states that automatic governors could be inserted so as to shut off the supply in case of any break. What have you to say on that subject?

A. Automatic cut-off valves that would, upon the amount of gas passing out through the governor in excess of the maximum, trip and shut down the valve, that is what I presume Mr. Edgerton has referred to; and there are such valves, more or less efficient; but granted the valves were put in, no question as to their efficiency, guaranteed to act on every occasion, it would not afford any safety as far as regulators are concerned in between the high pressure lines and the low pressure lines; would afford no extra safety with regard to high pressure lines; and it is the high pressure lines we are considering with the introduction of high pressure lines into a city where now we have only low pressure lines. These valve- are so designed and constructed that if through a break or any other cause the amount of gas being passed exceeds a certain amount, as I have stated, a trip

occurs and the valve falls and is held. That would shut off
6766 the gas through a particular governor from the low pressure mains, but we are not talking of low pressure mains; we are talking about a break in the high pressure mains, and if a break occurred in the high pressure mains, even if the valve did shut down it would have no effect upon it; the valve, in other words, is beyond the break. You could take another step towards safety by the introduction of such a valve at the pumping station. In other words, pumping all your gas up to such a pressure above 20 pounds as would be necessary to make this main automatic governor operate, that governor would pass the gas on about 20 pounds pressure to the high pressure line and then the gas would finally be governed by the individual governors. Now if a break occurs in the high pressure line and provided the gas passes in such possible quantities as to exceed the maximum for which that governor was set, plus the margin allowed, then it would shut, but to do that you would have to leak so much gas into the streets that you would not have secured safety. And, furthermore, the introduction of a valve or a regulator at that point, namely, after the compressor, would introduce another distinct danger. If for any other reason the pump ceased to act and the pressure fell on that account at the inlet the governor then would fall and you would not have gas on your mains and if the stoppage lasted long enough you would cease to satisfy your consumers, although that is a somewhat remote contingency; but the point is even if you introduce this additional valve, which I don't think any engineer with experience would stand for, the safety obtained from it would be practically nothing.

6767 Mr. BURR: I move to strike out "which I don't think any engineer with experience would stand for."

The MASTER: Let it remain. It is a question of expert opinion and there has been a lot of it given on both sides.

Exception.

The WITNESS: I can supply a little rough sketch. I didn't have time to make a proper one. If there is any doubt as to what I mean it can be shown by this.

Mr. MATHEWSON: I understand.

Q. In reference to a high pressure system of this kind, Mr. Simpson testified that it would require an expenditure of over four million dollars for additional mains, and Mr. Addicks also said it would require a large additional expenditure for pumping station and apparatus. Does that or not accord with your view?

A. It does. I have not been over the figures very closely, but I have done considerable figuring on it.

Q. And can you, as an engineer, as a gas man, see any reason why with a system of mains already in operation in the city of New York they should be either abandoned or supplemented by additional expensive mains or compressing stations such as have been indicated?

A. No, not such as has been indicated. I would be in favor as necessity developed, and as the company has done in the past of

introducing pumping mains running at lower pres-ures, though they are really high pressures for gas, and using pipes of a larger size for that reason and I think some misapprehension comes into the consideration of this matter perhaps by Mr. Edgerton and others in thinking that there is this very great difference in the size. There is large difference but there is no such difference as I think
6768 is generally supposed. For instance if I wanted to raise my flow from—double my flow—no, if I had a certain flow and wanted to increase the flow by say going up from 30 inches which we might take as a low pressure pumping scheme up to 20 pounds I could get the same effect by doubling the size of my pipe, doubling its diameter; that would be the difference in size.

Q. Referring to weights of pipes, Newbigging was quoted by Mr. Edgerton as to weights. Are you familiar with our friend Newbigging's work?

A. I have it in my office and have had it for many years and get all the editions. I am not very familiar with it.

Q. How do the Newbigging weights given for gas pipe compare with those Mr. Simpson states the Consolidated Gas Company is using and always has used?

A. My recollection is that in every side except two Newbigging is heavier than Simpson.

Q. And those are four inch and six inch pipes, are they not?

A. Four inch and six inch.

Q. And as to the frost conditions in England, relating to the depth of pipe, how do they compare with this country and how would that affect the laying of pipe?

A. The frost conditions in England are of co rse much less severe than here.

Q. Have you any knowledge as to the depth at which pipes are laid in London under the congested traffic of that city?

A. I have not any very definite knowledge—I have had it but I cannot recollect it.

Q. Mr. Edgerton at page 3979 refers to the best pressure, which he stated he thought in the Consolidated Gas Company would at present be about .6 of an inch, which would be all around the
6769 most satisfactory pressure; what is your view on that subject, briefly?

A. I entirely disagree with him.

Q. Is that based on theory or experience?

A. Based on experience, based on the complaints made by consumers.

Q. Do you think a higher or lower pressure would be good?

A. Considerably higher and I should want to point out here also that we are considering the pressure as I understand it in the ordinary distributing mains, and when we talk about a pressure required at the stove we have got to think of the pressure required in the distributing mains, to get the pressure at the stove.

Q. And would there be more or less of pressure between the mains and the stove?

A. There would be less pressure at the stoves than in the mains.

Q. How much perhaps on an average, for an average length of service or house pipe?

A. It is almost impossible to state, because the buildings and all run so differently—the piping is run so differently, but a loss of an inch would not be at all infrequent.

Q. What would you consider to be a minimum working pressure to meet the requirements with the various kinds of apparatus that are now in use, tested at the main?

A. In my opinion we have to have two and one-half inches at the head of all the services to get the best results. We could get along with less, but unquestionably an inch and a half to two inches at the heads of the service would create very great dissatisfaction, with modern appliances.

Q. Referring now to Professor Bemis' testimony at pages 3024 and 3025, he justifies his estimate of the value of a plant of twenty times net earning by quoting your testimony in Holyoke, Massachusetts, where he says that you pursued a similar cost or
6770 adopted some similar theory. Was that the case——

Mr. BURR: Ask him, what that case was.

Mr. MATHEWSON: Very good.

Q. What was that case?

A. A case where the investigation, appraisals, etc., were being made in connection with the determination of the city to take over the gas plant and electric plant.

Q. I was going to ask you if that was the case. And what was 5% in that case, or in what relation did you use it?

A. I used it in valuing the plant and business and used it in connections with the earnings which I had determined; the earnings of the gas plant separately, and I valued the plant on a basis of $672,654.

Q. Did that include the plant and tangible property alone or the plant and any rights and franchises and good will, etc.?

A. Of course there was a large question as to what the rights might be on account of the way it was being taken over, but that was my valuation of the plant, as I expressed it in the testimony, as a going concern.

Q. A tangible and intangible concern?

A. Yes, sir; everything for business.

Q. As a matter of fact, what were the tangible assets, the structural value of the tangible assets, estimated at that time and in that proceeding?

A. For the gas plant only $340,227.52.

Q. And the profits?

A. $33,632.70.

Q. And that would be a profit of how much on the structural value?

A. 9.88 per cent.

Q. Or practically ten per cent.?

A. Yes, sir.

Q. That is the same figure you gave in your original testimony here as a fair return of the bare structural value?

A. Yes, sir.

6771 Q. Now, at page 3021, Professor Bemis suggests that six per cent. is a sufficient return on your investment, and he quotes certain Massachusetts companies to show the net issues are on a five per cent. basis; that is, for an established, successful business. Have you examined that testimony and the returns of those companies?

A. I have.

Q. As they appear in the reports to the Massachusetts Gas Commission, to which Professor Bemis referred?

A. I have.

Q. What are the names of the——

A. Lynn, Cambridge, Clinton, Brockton, Newburyport, Fitchburg, Natick, and Malden and Melrose as one.

By Mr. BURR:

Q. Worcester, also, wasn't it?

Mr. MATHEWSON: That comes in later.

Q. My recollection is that that came in in a different connection.

By Mr. MATHEWSON:

Q. Have you made up a table showing from the reports to the Gas Commission exactly what the profits of the companies were which he referred to as on a five per cent. basis?

A. I have taken the profits as they appeared from the manufacturing account without any adjustment and the assets as they appeared in the individual reports, and found them to total as follows:

Assets	$5,895,499.60
Profits	595,968.12

or an average return upon the investment of 10.1 per cent.

6772 Q. In other words, their earnings were 10 per cent., although the dividends may have been some other figure; is that right?

A. Yes, sir.

Q. Did you prepare a table showing that?

A. Yes, sir.

Q. Have you it here?

A. Yes, sir; that is the table. It is as follows:

Average Return

Upon Investment of All Massachusetts Companies cited by Bemis on pp. 3021-3023 of Testimony in this case, as Shown by Gross Profits—"Manufacturing Account"—from Mass. Commission's Reports, return of June 30, 1905:

Company.	Assets.	Profits.
Lynn Gas & Elec. Co. (including Elec.)	$1,792,602.11	$259,159.28
Cambridge Gas Light Company	1,742,581.88	159,011.02
Clinton Gas Light Co. (including Elec.)	247,508.95	13,418.07
Brockton Gas Light Co	616,279.40	42,773.62
Newburyport Gas & Elec. Co. (including Elec.)	294,365.88	14,482.88
Fitchburg Gas & Electric Co	421,243.00	54,266.54
Natick Gas Light Co	63,667.30	1,480.36
Malden & Melrose Gas Light Co	717,251.08	51,376.35
Total	$5,895,499.60	$595,968.12

59,596,812 ÷ 5,895,499.60 = 10.1% Average return upon investment for all of the above companies.

6773 NOTE—In comparing above data with that contained in A. C. H. Table No. 1, note that, in latter, all the Mass. Gas Companies engaged only in the gas business are included, and that the profits as determined from the so-called Manufacturing Account are reduced by figures obtained from analysis of P. & L. Accounts. The above profits are the balances of Manufacturing Account without modification. The total reduction so made (in case of Natick and Malden) only amounts to $4,099.71 and leaves the average return for eight companies above still in excess of 10 per cent.

Q. Have you other copies of those?

A. I think I have; two more.

Q. Prof. Bemis also quotes the seven companies to which you have referred, Cambridge, Fall River, Worcester, Lowell, Springfield, Lawrence and Lynn, in another con-ection, at page 3055, with comments on their returns of capital?

A. Yes, sir.

Q. Have you from the same source, that is the reports to the Massachusetts Gas Commission, prepared a table showing their sales, capital, including funds and notes, per thousand, profits, and other items of income, so as to bring out a statement of the rate per cent. on the total capital paid by these companies and the cents per thousand of profit?

A. I have.

Q. Will you produce it?

A. Here it is. I will say that this is prepared, that there may not be any doubt about it, it is prepared from the actual returns made

by the companies themselves and not from the printed returns. It would be difficult for anybody to get all this information out of the printed returns. We have had to make application to the returns as furnished by the company such as were used by Mr. Bemis.

6774 The MASTER: This refers, as I understand it, to the corresponding material to that shown in table 18 on the other side of the page, 3055.

Mr. MATHEWSON: Yes, sir.

Mr. BURR: Except he says it is based upon the actual returns and not the official returns as appears in the report of the Massachusetts Gas Commission.

Mr. MATHEWSON: They are not printed yet. We got copies, as Mr. Bemis examined the originals or took copies.

The WITNESS: The printed records were not available for either of us, you see.

Mr. BURR: I see.

Q. And the results are as follows, are they not, as to the rate of return on capital,

Cambridge	11.55%
Fall River	16.38%
Lowell	16.09%
Springfield	9.6 %
Worcester	15.88%

or an average of how much?

A. 13.88%.

Q. What is the average profit or earnings, net earnings, allowed in the case of the five companies to which you have referred?

A. Net earnings allowed?

Q. Yes, cents per thousand?

A. 31.03.

Q. I see that on rates of total capital you specify nothing for the other two companies, Lawrence and Lynn. Is that because they are electric as well as gas companies, and their capital is not separated.

A. Yes, sir; I endeavored to separate but learned from the Commission that it will be impossible to do it reliably.

Q. But the cents per thousand sold can be stated and averages 35.16 cents for the two companies, does it not?

6775 A. That's right.

Q. Or an average for the seven of how much?

A. 32.06.

Mr. BURR: Are you going to put in the summary of results?

Mr. MATHEWSON: I offer this table, with the summary of results, in evidence.

Received in evidence and marked "Complainant's Exhibit 378.

Mr. MATHEWSON: This exhibit is marked at the top "A. C. H.; Table No. 4, rebuttal."

Dr. Humphreys made up several tables of one kind or another which may or may not be used tentatively, and that is a good way to refer to it.

The WITNESS: I would like to say, Mr. Mathewson, that I don't want to load you up with a lot of stuff, because everything is on here, I believe to make these details completely self-explanatory. I have endeavored to do so, and still they do need the explanation——

Q. Q. I was just going to ask you to make it?

A. Well, I have made up this table by taking each case and analyzing as far as I could with the returns of each company before me. Where I found certain other items charged to profit and loss, I considered them and analyzed them and introduced them except so far as they might be met by other items of income. If I found other items of income I didn't take credit for them but simply let them stand by themselves and took the profits from the gas business.

Q. If you had taken those items of income, that would have increased the rate of income and increased the profit in cents per thousand?

A. Yes, but I was endeavoring to confine myself strictly to
6776 the gas business as far as I could see it from these reports.

Where I found by analysis that the renewals and repairs did not amount to 14.15 cents I added.

Q. Wherever you found that the repairs, renewals and depreciation already equaled or exceeded 1.415 cents you left it at that point, did you?

A. I left it at that point, did not make any reductions on that account.

Q. And in every case where it was below you added to bring it up to 14.15, which was the figure you used in your estimate of the amount of depreciation, repairs and renewals?

A. That is correct, sir.

Q. That would compare with actual expenditures of the Consolidated Gas Company for repairs and renewals for the past twenty-one years I think you said, of 10.6?

A. Yes, that is my figure.

Q. Or nearly four cents more than the Consolidated?

A. Yes, sir.

Q. If these companies were to be cut down in this table to 10.60 cents which the Consolidated has actually expended per annum that also would show a substantial increase, the rate or return on capital, and in number of cents per thousand of profits, wouldn't it?

A. Yes, sir. I assume in that adjustment I did not take my amount, as I figured it up at 10.60, but took 10.89 as the amount that was probably more nearly in the minds of counsel on both sides.

Q. That was for the twenty years?

A. That was for the twenty years, but it has been so often referred to I took that instead of the amount brought up to date of 10.6.

Q. That is to say, following this table you made a comparison with the Consolidated Gas Company's situation, and have a
6777 table to that effect, have you not?

A. Yes, sir.

Q. Now, will you simply read that into the record? It is very brief.

Table No. 4 shows Gross Profits adjusted to bring Repairs and Renewals up to at least 14.15 c. per M in cases of all seven companies considered, but where Repairs and Renewals as charged were found to exceed 14.15c. no adjustment was made.

If now instead of making the above adjustment we adjust Repairs and Renewals to 10.89c. per M in all cases we find a considerable increase in Gross Profits as follows:

Gross Profit (5 Co.'s — 1 to 5) 15.78% of Capital as compared with 13.88% on Table No. 4 Col. No. 14.

Gross Profit (5 Co.'s — 1 to 5) 35.27c, per M as compared with 31.03c. on Table No. 4 Col. No. 15.

Gross Profit (2 Co.'s — 6 and 7) 39.38c. per M as compared with 35.16c. on Table No. 4, Col. No. 15.

Gross Profit (7 Co.'s) 36.29c. per M as compared with 32.06c. on Table No. 4 Col. No. 15.

Hence, assuming 8% interest we have $36.29 \div 8 = \$4.536$ as Capital per M *exclusive* of Franchises, Good Will and other intangible assets for the 7 Massachusetts Companies.

Sales of N. Y. Consolidated were 13,283,163 M ft. for Year 1905. Hence 13,283,163 x $\$4,536 = \$60,252,427$ as capital for N. Y. Consolidated exclusive of Franchises, Good Will, and other intangible assets on the basis of 7 Massachusetts Companies quoted by defendant's experts.

6778 Q. Now, Doctor, these special items, the profit and loss, debtors to profit and loss, column 7, represent charges other than those carried into the previous charges for cost of gas; that is, it might be called lump charging off?

A. Yes, sir.

Q. And you have taken enough of those to bring up to 14.15 cents where the amount of repairs and renewals and depreciation was less than that at the outset?

A. Oh, yes.

Q. Now, as a matter of fact, while that rate of repairs, renewals and depreciation is very much greater than charged by the Consolidated Gas Company, supposing you included not what you considered a fair adjustment and to which you have testified in these tables, but the entire amount of these special and arbitrary charges to the profit and loss account as part of the operating cost of gas, showing a gross profit for the five companies which you show in Complainant's Exhibit 378 of how many cents per thousand?

A. The five companies would still show 29.05 cents per thousand.

Q. And profits under capital of what per cent.?

A. Thirteen per cent., as compared with 13.88 on the table.

Q. But of course, if you add those enormous amounts to the depreciation, renewal and repair account they would become charges as against the operating cost of gas, would they not?

A. Yes, sir.

Q. What would they add to the operating cost of gas per thousand feet in that connection?

A. 4.47 cents.

Q. And that would have to be reckoned with, would it not, if you assume any such depreciation item as that?

A. Certainly.

6779 Q. Have you prepared two supplementary tables to Complainant's Exhibit 378, showing how the different items in Exhibit 378 were figured out as to the amount added in each case where it was added to bring the total renewals, repairs and depreciation up to 14.15 cents?

A. Yes, sir. This shows details so that it can be followed—the development of that other table can be followed; that is all it is for.

Q. One or two?

A. Two additional tables.

Q. Have you copies of those tables?

A. I have, sir.

Mr. MATHEWSON: I will ask you to give the copies to the other counsel and I will offer these in evidence.

Received in evidence and marked respectively Complainant's Exhibits 379 and 380.

Q. Have you gone to the Massachusetts reports, the last printed volume from the Commissioners of Gas and Electricity, in the State of Massachusetts, and taken all the companies in Massachusetts, as shown in the work from which Prof. Bemis has quoted, showing in similar manner to Exhibit 378 the returns as profit on capital, and profit in cents per thousand sold as to all of the companies in Massachusetts engaged exclusively in the gas business, so that they can be analyzed?

A. I have. I have prepared that table and also two supplements, Nos. 2 and 3, to show how I developed the details.

Q. In the same way that the last two exhibits showed the development of Exhibit 378?

A. Yes, sir, with a careful note in each column so as to lead anybody examining it to see exactly what I mean.

6780 Q. And in this case where the expenditures in the manufacture of gas did not equal 14.15 cents for renewals, depreciation and repairs, did you add a sufficient amount to make that sum up where there was any special fund charged off to which it could be applied, or from which it could be obtained?

A. Yes, sir, I added enough to bring up to 14.15, but did not deduct anything if I found more.

Q. And if it had been reduced to 14.15 by deduction where companies had charged off more than that it would have increased the rate of return on capital and increased the cents per thousand of cents of profit shown in this table?

A. Yes, where there were such cases.

Q. Will you state whether this table does not in whole show that the average profits per thousand sold for these companies were 32.21 cents per thousand?

A. Yes, sir.

Q. And the average return on capital 11.17 per cent?

A. Yes. I want to make an additional explanation, it appears here, and I had better draw special attention to it, that these adjust-

ments were made only in the case where there seemed to be necessity for it by the introduction into the individual profit and loss account of special items such as depreciation or reserve.

Q. If you had a credit that also would have increased the rate of return?

A. Yes, except so far as I stated where they might be considered as standing against other items of extra expenditure. Now, the returns as printed did not give me the full opportunity for closely analyzing those charges to profit and loss or again we have had reference to the detailed reports of the Commission, and we made those adjustments by the reports made by the companies themselves, the detailed reports in the same way, and employing that as Mr.
6781 Bemis had employed some in the case of 1906, though we went back to 1905, because the details were not even in the printed record.

Q. Now, I see in this paper which you have in your hand, one or two, perhaps two, companies you have marked "ignored"; what is the reason for that?

A. Well, in one case it is plainly shown there, No. 2 where there was a loss. There was no good considering such a case as that, in considering profits. It shows an abnormal condition, I hope.

Q. Reference has been made to Haverhill?

A. Yes, sir.

Q. Now, if you look at this table a moment, referring to the low capital at Haverhill, meaning stock, bonds and notes, it appears to be how much?

A. 63 cents per thousand feet.

Q. To you as a gas engineer familiar with conditions, what would that indicate as to assets?

A. Indicate the assets had been very largely written down in some way or another.

Q. How much does Haverhill earn on a capitalization in percentage on capital?

A. 44.56 per cent. on that basis.

Q. And looking down the table it seems to be generally true, does it not, that these companies with very low capitalization are permitted to earn a very high return on it?

A. Yes, take the very t one on the list, Worcester, shows 2.18; earns 14.20 per cent.

Q. And when you speak of capital in this table which you have before you and also in Complainant's Exhibit 378, it refers, does it not, merely to the paper capital, that is, to stock, bonds, notes payable and not to the value of assets or value of property? Not at all to the value of assets or value of property?

A. Not at all to the value of assets, and the notes payable
6782 are the notes payable which are considered as part of the fixed capital by the commissioners and so show in their returns.

Q. The same ones to which I called Dr. Marks' attention when he was on the stand?

A. Yes, the same thing.

Mr. MATHEWSON: I will offer this in evidence, with the summary, showing the detail by which this table was developed, for the convenience of counsel.

Received in evidence and marked Complainant's Exhibit 381 382 and 383.

Q. Assuming that all these special lumped charges included in the column of this large sheet, Complainant's Exhibit 381 under column 7 (Special debits to profit and loss) were included not only to sufficient extent to bring those individual companies up to 14.15 cents for repairs, renewals and depreciation, but that such items had been included *in toto*, making a very much greater charge. What charges would the gross profits for the thirty-two companies still appear to be per thousand feet?

A. 27.61 cents, as compared with the figures shown on the detail, 32.21 cents.

Q. Or a return on capital of what?

A. 9.57% *per cent.* as compared with 11.17.

Q. But in case you had this additional charge to depreciation, renewal and repair account it of course would go into the operating cost of gas as a charge against operation, would it not?

A. Certainly, amounting to 5.75 cents per thousand feet.

Q. So in reckoning the cost of gas if you were to include those immense depreciation charges you would have to add 5.75 cents to the cost, would you not?

A. Yes, that is right.

6783 Q. In other words, is it possible to consider a large depreciation charge without at the same time considering an addition to the cost of gas to take care of it?

A. No, sir.

At 1.00 P. M. a recess was declared until 2.15 P. M.

After Recess.

ALEXANDER C. HUMPHREYS, resumed.

By Mr. MATHEWSON:

Q. Referring to your statement that the inclusion of all the special items of debit arbitrarily charged off in the cost of gas, following the introduction of Complainant's Exhibit 378 would add to the cost of gas 4.47 cents, just exactly what do you mean by that? I think I did not ask you definitely enough, so that it is clear. That is, how is the 4.47 cents computed and what does it represent?

A. The 4.47 cents covers all the special charges carried into profit and loss, reduced to the cents per thousand basis; the difference in cost, as found on Exhibit 378, namely, 31.03 and 29.05, the difference in cost would be only 1.98 of course, and that 29.05 is found by including such additional amounts as are found on the profit and loss statements outside of the adjustments I made, already explained.

Q. In this connection you omitted Lawrence and Lynn, for the reason that their business is involved with electricity?

A. Yes, sir. Perhaps you want an explanation on the other table, if you did not understand me.

6784 Q. Very good. What does the 5.75 cents mean which you said would be added to cost if everything was included, all the special items on Complainant's Exhibit 380?

A. That 5.75 is on a par with the 4.47, referring to the other table, whereas the net difference in cost would be only 4.60, namely the difference between 27.61 and 32.21, as it appears on Exhibit 380.

Q. Now, by reference to Complainant's Exhibit 382, if you are to include all the special debit charges to which you have referred, it would show a charge to repairs, depreciation and renewals on the part of Cambridge, of how much per thousand feet?

A. 22.679, with this little explanation: Gas stove repairs and renewals are omitted in that total, because I found upon close investigation that that account was in Massachusetts practice used somewhat as a dumping ground for other charges, and while unquestionably the repairs and renewal charges are in there which should be included, I was not able to eliminate the charges which were not stove repairs and renewals, and therefore did not include it at all. In other words, these amounts would all be somewhat increased if we had all the repairs and renewals included.

Q. But on the general proposition of return upon capital and the cents per thousand included, there would be substantially no change?

A. No, there would be no change, because it simply means that a certain item which is not in repairs appears as repairs in the total, it would be in.

Q. In East Boston the total return is 16.996, including repairs and depreciation, if the special debit item be included?

A. Yes, sir.

Q. And Northampton?

A. 31.577. Pittsfield, 57.003; Plymouth, 66.466; Springfield, 26.107; Taunton, 22.037; Worcester, 21.199.

6785 Q. Cents per thousand feet in each case?

A. Yes.

Q. You observe that Mr. Marks and Mr. Bemis assumed certain capital and assets in Massachusetts, as though they represented actual assets and capital of the company. As an engineer familiar with the gas business, what would it indicate to you where charges are made at that rate for depreciation, repairs and renewals?

A. The charges in some of those cases undoubtedly indicate that there has been a writing down of assets by charging too much; more than was required to account for depreciation and repairs.

Q. Now, referring to the companies that were selected by Mr. Marks as to four out of the five, and as to Mr. Bemis, all five, Cambridge, Fall River, Worcester, Springfield and Lowell, as typical companies, have you made an analysis of the reports for the year ending June 30, 1906, with a view to showing the actual book value, and structural value per thousand feet in the case of those companies?

A. I have.

Q. Now, is the table you have in your hand the result of your

knowledge and computation and does it state your conclusions therefrom?

A. It does, in connection with certain other tables.

Q. Have you a copy of this table for the other counsel?

A. Yes.

Mr. MATHEWSON: I offer that in evidence.

Paper received in evidence and marked Complainant's Exhibit 384.

Q. This table, Complainant's Exhibit 384, shows adjusted book assets for the Cambridge Company of 4.38; Fall River, 3.80; Springfield, 4.62; Worcester, 4.38 and Lowell 3.40. Lowell seems to have no figure carried opposite the adjusted book assets, and I find
6786 in relation to street mains and meters the statement that Lowell in its assets and liability statement does not separate the mains and meters from the real estate, machinery and manufacturing appliances and that therefore no adjustment could be made in the case of this company. That is the explanation, is it?

A. That is true.

Q. Now as explanatory of this table 384 have you prepared certain supplementary tables?

A. I have, to establish the adjustments.

Q. The first table, being table number 8 to which I call your attention, indicates, does it not, how the item working net assets found in Compa*f*inant's Exhibit 384 is obtained?

A. That is true, yes, sir. It is for that purpose so as to give details of the amount appearing in the main sheet.

Q. Complainant's Exhibit 384 and with the necessary notes and explanations of the method I follow.

Q. You deduct from the quick assets the floating debt?

A. That is right.

Q. Now Mr. Marks testified, you may recall, that he found the working capital of the four companies which he dealt with as 47.8 cents per thousand feet of sales after including the notes payable, in accordance with the custom of the Massachusetts Commis-ion. What do you find here as to working capital per thousand feet sold? Mr. Marks' figure of 13 cents was his first estimate when he excluded notes payable and some other items from working capital, but his final figure was 47.8 cents including those items, when he found that the Mass. Commission included them. What do you find for these five companies as to working capital?

6787 A. The figure that rested in my mind was the 13 cents, that being Mr. Marks' figure as really deduced by him. My recollection is also that Mr. Marks took for the year of June 30, 1905, and for that year on the same basis on which this paper was prepared the true working capital would be 43.75 cents per thousand, and this table for the year June 30, 1906, shows the working capital to average 38.5 cents per thousand, instead of 13 cents.

Mr. MATHEWSON: I offer that table in evidence.

Paper received in evidence and marked Complainant's Exhibit 385.

Q. Now, have you also a table marked "A. C. H., Table No. 9,"

indicating how the excess value as to street mains and meters over book value is obtained?

A. I have. It is a comparison between the book value of certain of the assets and an estimated value prepared in the case of such assets and details are to be found in the reports. For instance, street mains, and meters, are scheduled in the reports, and therefore, we have an opportunity to compare with these two particular items the book values with the real values. I have been careful in making my estimates for comparison to take conservative values. For instance, in my estimate on meters, I took the present cash price and did not even add for cartage. All the discounts are taken off. The street mains, instead of taking any value of mine, this refers to Mr. Marks' work, I have satisfied myself for this particular purpose by accepting Mr. Marks' estimate of cost for cheap laying, namely under uniform conditions of macadam. On that basis I have prepared this explanatory table so as to arrive at the values appearing in table No.
6788 7 by which we built up the assets. It is to be noted that I have no means of adjusting for works nor for services.

Q. But taking street mains and meters only, and those you say are the only ones you can compare, does it not appear that in every instance, that the actual value as estimated exceeds the book value with the sole exception of meters in Springfield, where the book value seems to exceed the actual value by $1,693.

A. That is true.

Mr. MATHEWSON: I offer this table in evidence.

Table received in evidence and marked Complainant's Exhibit 386.

Q. Now, you have produced another table known as "A. C. H. Table No. 10," showing your details of the estimated values of the meters as shown by you on the last previous paper, Complainant's Exhibit 386, based on the conservative basis of figuring to which you have testified?

A. I have.

Q. And this paper merely shows the detail of such computation, does it not?

A. That is all. It is just to show the facts as I understand them.

Mr. MATHEWSON: I offer that in evidence.

Received in evidence and marked Complainant's Exhibit 387.

Q. Have you also prepared a further supplementary table known as "A. C. H. Table No. 7," being a summary comparing the estimated increases in the value of street mains from June 30, 1905, to June 30, 1906, with the increases of value of such mains and services for the same period, and showing the apparent writing down of this account for the four companies at Cambridge, Fall River, Springfield and Worcester?

A. I have.

Q. Take Cambridge and the increase between June 30,
6789 1905, and June 30, 1906, in mains upon Dr. Marks' estimate of value would be $15,524, would it not?

A. Yes, sir.

Q. How much does the increase appear on the books?

A. $6,010, making a difference of $9,514.

Q. From your knowledge of the value of mains would you be able to say that the $6,010 does not represent an adequate value of the increased main mileage?

A. It does not represent the value on the books, no.

Q. In every case there would seem to be a writing into the books of less than the full increase, except in the case of Worcester, as to street mains and services?

A. That is right.

Q. And the details at the foot of this sheet show how the totals above are arrived at in detail, do they not, or at least the amounts which are found at the foot of the column?

A. That is right, it shows the details. It is a listing of the amounts.

Q. Dr. Marks produced statistics as to the Worcester Company and was questioned as to their treatment of assets in their books, and as to the fact that the assets account did not keep pace with the increase in property. Have you prepared as illustrating this from the Massachusetts' reports to which his attention was drawn, a statement of the increase in mileage for mains for the Worcester Company between June 30, 1901, and June 30, 1906, a period of five years as indicating that policy?

A. I have.

Q. And is the table, "A. C. H. Table 11-A," a table setting forth the results?

A. It is.

Q. Now, taking this table, it appears that on June 30th, 1901, that the Worcester Company had 523,128 feet of mains to which you attribute a value of $430,000, omitting some few mains of 1, 1¼ and 1½ inches and the 30 and 36-inch mains which do not seem to appear?

6790 A. Well, I omit the 1, 1¼ and 1½ inches, which are on the list simply because they are small, and Mr. Marks' table did not cover them. I wanted to confine myself to that.

Q. That is, he gave no values for them?

A. Yes, sir. The 30 and 36-inch mains do not appear in the schedule.

Q. And the same is true where dashes appear elsewhere in this account?

A. That is right.

Q. According to Mr. Marks' unit values this 523,128 feet should be worth on June 30, 1901, how much?

A. $430,270.

Q. What were they actually carried at on the books of the Worcester Company on that date?

A. $123,215.

Q. Which would be less than one-third of the value as computed by Dr. Marks, would it not?

A. Yes, sir.

Q. In the year ending June 30, 1906, we find that the mains of the Worcester Company have increased from 523,128 to how many feet?

A. 707,885 feet, which I valued at $558,137.

Q. On Dr. Marks' unit values?

A. Yes, sir, simply by way of comparison as will develop later.

Q. Instead of appearing on the books of the company at a value of $558,137 on June 30, 1906, at what value are they carried?

A. $112,328.39.

Q. That is to say in spite of an increase from 523,128 feet to 707,885 feet in the five years the company has reduced the book value of its mains by how much?

A. $10,977.47; in other words, there is an increase in calculated value which is an increase on new pipe, because the increase is in new pipe of $127,867, and if we add to that the actual decrease in the book value of $10,977.47 we have a difference of $138,844 in this period alone. That is the increase of calculation values of mains alone.

6791 Mr. MATHEWSON: I offer that in evidence.

Paper received in evidence and marked Complainant's Exhibit 389.

Q. You said that the only items which you were able to compare, as appearing in the report, were the mains and services and meters. Have you any reason to suppose that the treatment of manufacturing plant as to writing down, and other assets, was any different on the part of the Massachusetts companies than their treatment of mains and meters?

A. Mains and meters?

Q. Yes.

A. Services I did not compare. No, I have no reason to suppose they followed any different plan.

Q. Do you know what the structural value per thousand feet average throughout the United States has been of gas plants according to the last census?

A. Yes. I have a memorandum here.

Mr. BURR: Sales or capacity?

Mr. MATHEWSON: Was it sales or capacity?

The WITNESS: Per thousand feet of sales.

Q. And the average capital per thousand feet of sales, taken into account all the gas undertakings throughout the country according to the census was how much?

A. The United States structural value per thousand was $7.23 and capitalization $8.47, as compiled by Mr. Grosser, the statistician, in Chicago. I took it from a statement appearing in the Chicago pamphlet, as it has been called here.

Q. His tabulation purports to come from the United States census, does it not?

A. Yes, sir.

Mr. MATHEWSON: That is the pamphlet we had from them with several statements quoted therefrom.

6792 Q. Mr. Bemis says at page 3092 as a well known fact in the gas business that an increased consumption following a reduction of price does not involve a proportionate increase in cap-

ital. Have you taken the companies to which he referred in his table—was it at page 3092?

A. He refers to those companies at page 3021 or 3055.

The MASTER: 3055 is the Massachusetts companies.

Q. Have you taken the large companies, Lynn, Worcester, Springfield, Lowell, Lawrence, Charlestown and Cambridge, to see whether his statement that there is no proportionate increase required in capital is susceptible of proof?

A. I have.

Q. Have you prepared a table showing the increase in percentage of assets and profits?

A. I have.

Q. And do you remember his statement that the profits would largely increase with very little increase in assets in case of an increased output in gas?

A. Yes, sir. "It is a well-known fact in the gas business that an increase of consumption following a reduction in price does not involve a proportionate increase of capital?"

Q. In taking these companies have you taken the increase in price for periods which Mr. Bemis used in his table, in showing the increase in sales or profits of the companies?

A. Yes, sir.

Q. For instance, Lynn?

A. I think you will find that page to be 3090.

Q. For instance, in the case of Lynn, Professor Bemis took two periods, 1894-5 and 1903-4, did he not?

A. Yes.

Q. And in Worcester, two periods, 1894-5 and 1900-1?

A. Yes.

6793 Q. And so on for the other companies which I have named?

A. Yes.

Q. Now, taking those two periods for the Lynn Company, for example, 1894-5 and 1903 and 1904, the gas profits show an increase of profits of how much money?

A. Over the first period they show an increase—well, the profits were $46,212 in the first case and $114,200 in the second, and the ratio is 2.47.

Q. Did you find that the gas assets had to increase or did increase any less rapidly than the profits?

A. I found the gas assets to be $351,405, and $879,421, a ratio of 2.5.

Q. In other words, the assets increased more rapidly than the profits, did they not?

A. A little in that case.

Q. How about Worcester?

A. Let me add to that, please, I think I left it off the table, that the total reduction in that case was from 1.22 to 90 cents.

Q. In the case of Worcester the reduction was from $1.29 to one dollar, was it not?

A. Yes, sir.
Q. And the profits increased?
A. The ratio was 1.22.
Q. And gas assets?
A. 1.23.
Q. In the case of Springfield with a reduction from 1.37 to 1.01 there was an increase of profit by a ratio of what?
A. The profits increased 1.67 and the gas assets 1.22. There is an explanation on the table showing that the conditions were somewhat different, change of management, etc.
Q. In Lawrence what was the result of a reduction from $1.28 to one dollar?
A. The increase in profits was a ratio of .83 and the increase of assets was 1.45.
Q. And in the case of Lowell with a reduction from $1 to 91 cents?
A. The ratio of profits was 1.30 and the ratio of gas assets 1.40.
6794 Q. Of course all of these gas outputs are under the legal rate of 16 candle power?
A. They are under that rate. I have not put in the actual candle powers delivered.
Q. Cambridge shows an increase of .96 ratio and profits and 1.11 ratio in assets, does it not?
A. That is right.
Q. Charlestown on the other hand seems to show an increase of 1.48 ratio in profits and 1.18 in assets?
A. That is true.
Q. What is the explanation there?
A. They were buying gas from the Union Gas & Coke Co., and since then they had been building a plant for themselves. In other words, they did not need the increase in plant because they purchased the gas already manufactured in their immediate neighborhood.

Mr. MATHEWSON: I offer that paper in evidence.
Received in evidence and marked Complainant's Exhibit 390.

Q. Prof. Bemis at page 3533 said that in some cases a reduction had been made in Massachusetts when dividends were below 6%?
A. Yes, sir, he made that statement at page 3533.
Q. Have you a statement of the companies to which that statement of his would apply?
A. I have prepared a statement which I think is complete.
Q. He named the companies, I think, and you have taken the same companies, have you not?
A. Yes, sir, I think I have taken the exact companies.
Q. Does it appear in the case of those companies that that was the general rule, or did the Commission make some explanation
6795 in each case of why the reduction was made?
A. I will say that there is a special explanation in each showing that there were conditions which the Commission seemed to think warranted them in making this reduction.

Q. Did they make a special explanation in each case?

A. Yes.

Q. Have you prepared a memorandum for convenience setting forth in as concise terms as possible the statements of the Commissioner in that regard, setting forth the reason?

A. I have. It is as follows:

1A—EXHIBIT

MEMORANDUM

In Regard to the Reductions in Price of Gas Made by the Massachusetts Gas & Electric Light Commission When Dividends Were Only 6%, As Claimed by Profesor Bemis in His Testimony (See page 3533).

SPRINGFIELD—Reduction took effect November 1, 1900:

In its decision upon this petition the Board said (see page 19 of Report Issued January, 1901) that as far as the dividends were concerned it was doubtful whether it would be justified in reducing them, but that the earnings for the fiscal year ending June 30, 1900, were the largest in the company's history, and that even allowing for the reduction in those earnings that would be produced by increases in the prices of materials there would still remain "after providing for dividends and the other charges necessary for the maintenance of a proper public service a substantial sum, which may be applied to a reduction in the price."

6796 The profit from the gas business for the fiscal year ending June 30, 1900, was $86,543.83, or at the rate of 11.99% upon the gas assets of $684,940.02, which equalled $4.50 per 1,000 cu. ft. of sales for the year (see pages cxx and 124, Report issued January, 1901). If the average price received during this fiscal year had been lower by the amount of the reduction of 20c. per 1,000 cu. ft., ordered by the Commission, the profit from gas for the year would have been $56,163.85, or at the rate of 8.2% upon the gas assets.

EAST BOSTON—Reduction took effect March 1, 1901:

In its decision upon this petition the Board, in reviewing the history and financial policy of the company, said: "For many years no charges whatever were made for depreciation; these have never exceeded one per cent. in any year, and have usually been not more than three-quarters of one per cent. At the same time, although the annual charges for repairs have been uneven in amount, and, when computed upon the cost per thousand, have sometimes seemed to be too high, no considerable sum seems ever to have been charged in this way which should have been charged to construction accounts. The tendency, on the whole, has seemed to be liberal towards construction rather than operating accounts * * * The natural result of the policy thus outlined has been that the company has to-day a plant whose structural value is probably less than its capital stock, and is confronted with a demand for a liberal expenditure for extraordinary repairs, needed in the interest of the consumers and the shareholders as well," and concluded, "As the conditions exist, how-

ever, it is difficult to see how the expenditures now needed can be met without either a higher price or a lower dividend rate
6797 than might otherwise be fair and reasonable. The responsibility for this condition seems to be so clearly upon the management that it does not seem to be the duty of the Board to provide for these expenditures out of the price of gas, or to require consumers to again contribute, through the maintenance of the present price, what they have already once contributed for such a purpose. The conditions seem to entitle consumers to a reduction in price, and to imperatively demand, for the proper conserving of the interests of the shareholders, a reduction of dividends until such expenditures have been made upon the plant as will equip the company to supply gas at a reasonably low price with a fair profit."

The profit for the fiscal year ending June 30, 1900, was $24,856.22, or 8.1% upon the assets of $306,933.47, which equalled $6.05 per 1,000 cu. ft. of sales for the year, while 10% dividends were paid upon the capital stock of $220,000, which equalled $4.34 per 1,000 cu. ft. of sales (see pages xli and 123 of the Report issued January, 1901). If the price during the fiscal year had been lower than the average price actually received by the amount, 15c., of the reduction ordered by the Commission the profit would have been $17,337.17, or 5.6% upon the assets.

WALTHAM—Reduction took effect June 1, 1901:

This was a combined gas and electric plant and the Board found that in addition to selling gas to two large consumers at a loss, the company was making the gas department pay part of the cost of the electric department (see pages 15, 16 and 17 of the Report issued January, 1902). Even under these conditions the profits from gas for the fiscal year ending June 30, 1901, was $15,600.03,
6798 or 9.83% upon the gas assets of $158,647.58, which equalled $4.60 per 1,000 cu. ft. of sales during the year (see pages cxxxi and 135 of the Report issued January, 1902). If the price received during the fiscal year had been the average price, $1.30, per 1,000 cu. ft. received during the first fiscal year during the whole of which the reduction ordered by the Commission was in effect, instead of being $1.41 as it actually was, the gas profits would have been $11,871.83, or 7.5% upon the gas assets.

NEWTON AND WATERTOWN—Reduction took effect July 1st, 1901:

In this case the Board found that notwithstanding a decrease in the price of gas in "the last fiscal year" and an increase in cost of materials combined with a decrease in value of residuals "a somewhat lower rate than that charged would probably permit the maintenance of the usual dividend, and amply provide for depreciation or contingencies, along with the maintenance of the best service to the public. To such a reduction the consumers are justly entitled." In the fiscal year ending June 30, 1901, the profit from gas was $42,386.82, or 11.6% upon the gas assets of $366,341.85, which equalled $3.33 per 1,000 cu. ft. of the sales for the year (see pages xcviii and 135 of the Report issued in January, 1902). If the price received during the fiscal year had been the average price, $1.17, per 1,000 cu. ft. received during the fiscal year during the whole of which the reduction ordered by the Commission was in effect, instead of

$1.30 as it actually was, the gas profits would have been $28,223.08, or 7.7% upon the gas assets.

6799 CHICOPEE—Reduction took effect January 1, 1903:

In this case the Board found that 24% of the total output of the company was sold to two large consumers at a price that did not include a fair share of the fixed charges, and that in addition the expense of management was very high. They summed up the case as follows: "The proposition that a company is entitled to a fair profit involves a further proposition that its affairs are economically and judiciously managed. The management may, if it desires, choose between profits and a high operating account, but it cannot rightly choose to impose both upon the consumer. Some of the prices now charged are unusually low, too low, it may be, for the interest of the corporation; but the highest price charged is unusually high, and the economies demanded of the Company may properly be applied to a reduction in this price." The reduction in price from $1.75 to $1.50 per 1,000 cubic feet, which was ordered by the Board, only affected about 24% of the sales, and only made a reduction of 4c. in the average price received per 1,000 cu. ft. in the fiscal year in which it was made, and of 9c. per 1,000 cu. ft. in the first complete year in which it was in effect.

For the fiscal year ending June 30, 1902, the profit from gas was $6,423.84, or 3% on the gas assets of $193,252.91, which equalled $10.24 per 1,000 cu. ft. of sales (see pages xxxv and 146 of the Report issued in January, 1903). If the price received had been the average price, $1.31, per 1,000 cu. ft. received during the first fiscal year during the whole of which the reduction ordered by the Commission was in effect instead of being $1.40 as it actually was, the profit would have been $4,736.41, or 2.4% upon the assets.

6800 CHELSEA—Reduction took effect November 1, 1904:

The Board in this case stated that the ability of the company to make any reduction that might be practical was due entirely to the contract in force for the purchase of gas from the Massachusetts Pipe Line Company, the benefits of which should be shared between the stockholders and the consumers (see page 20 of the Report issued in January, 1905).

The gas profits for the fiscal year ending June 30, 1904, were $24,754.76, or 7.5% upon the gas assets of $329,630.85, which equalled $6.63 per 1,000 cu. ft. of sales for the year (see ppages xxx and 125 of the Report issued in January, 1905. If the price received for gas during the fiscal year had been less than the amount, $1.25, per 1,000 cu. ft. actually received by the reduction of 15c., ordered by the Commission, the gas profits would have been $17,105.27, or 5.2% upon the gas assets.

EAST BOSTON—Reduction took effect November 1, 1904:

In this case the Board gives the reason for ordering the reduction as follows: "The acquisition of this company in the interest of the owners of the other Boston companies was effected but little more than a year ago. The advantage of this alliance, bringing to the company a highly skilled management and increased facilities in the purchase of supplies, has apparently improved the company's ability to serve its customers. As this common control makes

special economies available, the company may well afford to share their benefits with its consumers. Utilizing these advantages, and considering the expenditures needed to improve the services and maintain it at a proper standard, the Board make their recommendation."

6801 In the fiscal year ending June 30, 1904, the profit was $30,489.89, or 8.4% of the assets of $362,587.84. Owing to the fact that one-quarter of the gas sold was sold in bulk to another gas company and therefore did not call for any distributing system, the assets per 1,000 cu. ft. of sales have not been figured. (See pages xliii and 124 of the Report issued January, 1905.) Taking the average price received for the gas sold to ordinary consumers as being less than the average price, $1.26, per 1,000 cu. ft. actually received for gas sold to such consumers by the amount, 5c., of the reduction ordered by the Commission and the price of gas sold to the other gas company as being that stated by the Commission in their decision the profit for the year would figure out $27,493.96, or 7.6% upon the assets.

NEWBURYPORT—Reduction took effect December 1, 1904:

The reasons for ordering this reduction are stated by the Board as follows "About two years ago the control of the corporation passed to the present owners, who have greatly improved and extended the plant and the cost of this work has so increased the company's indebtedness that at the date of the decision it was more than $110,000.

"The statement of the company's operations for the last fiscal year shows a surplus, after payment of interest and dividends, altogether too small either for a reduction in price or even for the regular and safe conduct of the company's affairs. A careful scrutiny, however, of the operating accounts disclosed the fact that they contained numerous items incidental to the plant improvements already referred to; and, while these may have been properly

6802 and necessarily included, they are not likely to be repeated, and their absence from future statements will make a substantial increase in the company's apparent profits. On the other hand, this increase will be in some measure offset by an increase in the interest charges, due to the growth of the floating debt.

"Giving due weight to all these facts, the conditions which surrounded the company at the time of the decision seemed to permit only the reduction in price which was named by the Board."

In the fiscal year ending June 30, 1904, the profit from gas was $6,630.60, or 5.6% on the gas assets of $128,962.82, which equalled $5.36 per 1,000 cu. ft. of sales for the year (see pages xcvii and 125 of the Report issued in January, 1905). If the price received during the year had been only $1.40 per 1,000 cu. ft., this being that to which it was reduced by order of the Board, the gas profits would have been $4,111.41, or 3.2% upon the gas assets.

CHARLESTON—Reduction took effect January 1, 1906:

In the fiscal year ending June 30, 1905, the profit from gas was $68,778.41, or 10.5% upon the gas assets of $654,049.75, which equalled $3.58 per 1,000 cu. ft. of sales for the year (see pages cx and 116 of the Report issued in January, 1906).

If the average price received during this fiscal year had been 91c. per 1,000 cu. ft. instead of $1.01, as it actually was, the gas profit would have been $50,507.81, or equal to 7.7% upon the gas assets.

Mr. BURR: I cannot help but remark that this is called a memorandum instead of a long speech or oration, as the statements
6803 of Professor Bemis and Dr. Marks were characterized.

Mr. MATHEWSON: They should have headed their memorandum in that way. This was taken from the same sources which they kindly introduced to our notice.

Q. Are you able to find any general pronouncement of the Gas Commissioners in Massachusetts that a six per cent. rate is sufficient under normal circumstances?

A. No, sir.

Q. At page 3093 Professor Bemis says that he draws a conclusion from his study of the Massachusetts companies that if the companies can stand a reduction of any given amount they can stand a reduction of at least eight or ten cents more by reason of the large increase in business sure to follow without any proportionate increase in expenses, always providing that the reduction does not go down to operating cost. The exhibits we have put in have shown an increase in assets proportionate to profit and more, but independent from that, what would be your view as to the soundness of the proposition which he advances?

A. My view is it is very unsound. For instance, if the statement is literally interpreted, I can hardly believe Mr. Bemis wished it to be so understood, in other words, if there is a reduction of eight or ten cents, there is no reason that there should not be another reduction of eight or ten cents, the only limit is, provided it does not go down to operating cost. Suppose it went down within one or two cents of operating cost, the amount of sales would have to be very, very large.

By Mr. BURR:

Q. Then we would have confiscation, would we not, Doctor?

A. We would.

6804 By Mr. MATHEWSON:

Q. He also refers to the proposition which he advanced that with a reduction of price there would be or will be such a great increase of consumption that the sales will increase very rapidly, and in this connection some one referred to the London companies. What is the experience there according to your investigation?

A. Taking the years 1900 and 1904, taking the three London companies and averaging them, the reduction in price between those years was 10.56 per cent., whereas the sales only increased on an average of one per cent. per year. My recollection is that one per cent. per year figured up 4.23.

Q. Is not the consumption in London so far as you know the largest per capita of any city in the world outside of New York?

A. I believe it to be.

Q. Would the fact that the saturation point per capita has been

so nearly reached have any effect on the increase in consumption in your judgment?

A. In my opinion it has a very great influence.

Q. And what would you say as to Professor Bemis' statement at page 3218 that his experience throughout this country and Europe tends to show that the large company has lower costs of distribution, as to its being a general proposition which may be accepted?

A. As affected by the increase in sales, the larger the sales, presumably, the larger the company, in that sense.

Q. That is what I referred to.

A. The average for the three Metropolitan companies between the years 1901 and 1905 shows an increase in the items which are called distribution and management of 18.8 per cent., whereas the sales show an increase of 3.79 per cent., so that the expenses increase even faster than the sales.

6805 Q. Referring to the Laclede Gas Company, which was introduced at page 3018 as part of a table, it was stated that 5 per cent. was paid on stock and bonds, but upon what capitalization was the 5 per cent. paid, if you have computed it?

A. First mortgage bonds, $10,000,000, five per cent.; five per cent. extending refunding bonds of $7,000,000, making $17,000,000; preferred stock of $2,500,000 and common stock $8,500,000, making $28,000,000.

Q. That would be an equivalent to $8.43 per thousand sold, the sales being 3,221,671 thousands, thousands being the unit.

Q. That would be an equivalent to 8.43 per cent. on a capitalization of $5 per thousand cubic feet of sales?

A. Yes.

Q. Or of 10½ per cent. on $4 of sales?

A. That is right.

Q. At page 3577 and 3578, where Professor Bemis was asked as to its being easier to maintain a candle power of only 14 with coal gas than it would be to maintain a candle power of 22 by means of oil enrichment to a large degree, he said it was easier probably to maintain 14 than 22 candles, and yet that he knew in Philadelphia the candle power does not vary a mile from the works, and at the home of Mr. Walton Clark, who lives seven or eight miles away. Does your knowledge of the situation at Philadelphia enable you to say whether that is so, or could be so?

A. No, sir, it is not so, and could not be so.

Q. Professor Bemis stated as his authority something that Mr. Walton Clark said to him, have you gone to the same source of information to find whether Professor Bemis properly understood the matter?

A. I have, and have his absolute denial that he ever made any such statement.

6806 Q. In writing?

A. In writing, yes, sir.

Q. Now as a matter of fact in considering candle power and the maintaining of a margin, is it not true that it is easier to maintain a narrow margin above 14 or 16 candle power, where you are making

coal gas, than it is to maintain a narrow margin above the 22 standard for water gas, with the assurance that you will not fall below the standard fixed at any time?

A. It is easier to maintain the standard on the lower candle power, especially as compared with water gas made today, from the oils which we have to employ; especially so in that regard.

Q. And assuming that the Consolidated Gas Company was maintaining a certain candle power at its works, and that that candle power averaged on the whole considerably above the 22 rate, but that repeatedly the candle power was found falling at one or more points to between 22 and 22½ candle power, would it in your judgment be prudent or wise to reduce the candle power at the works?

A. It would not, in my opinion.

Q. Do you or do you not think it necessary to take into consideration the possible fall in candle power beyond the testing station before it reaches consumers, at dis-ant points?

A. I certainly do, although as I understand the New York Law, they can test where they please, and therefore can go beyond the present testing station and so find a farther fall than is shown by the city's test at present.

Q. Questions have been asked in reference to the provisions of the English statute, in reference to candle power penalties. Is it possible with fair prudence and safety to maintain a narrow margin between the standard of average candle power where the penalty is
6807 slight, than where the penalty is heavy?

A. As a commercial proposition of course you can run more risk in that connection, because the fines are smaller.

Q. What is the English statu-e? What, in brief, does it provide?

A. The London standard?

Q. The London standard, yes.

A. To understand the London standard and the London penalties you have to take the Law of 1880, which as I think has been referred to two or three times in this case, and read that, and read with it the modifications brought in to the amendment of 1905, London Gas Act.

The MASTER: Did not some of the provisions of that 1905 Act get in on the record before?

Mr. MATHEWSON: Yes, they did, but that is not the Act that provides the penalties. It relates back to a previous Act.

Q. Is not that so?

A. Yes. The 1905 Act simply refers back to the old Act and simply shows these amendments. The facts are at present, taking into consideration both these laws, there is no penalty for sulphur or ammonia; sulphuretted hydrogen remains as an impurity, with 50 pounds the maximum fine for each occasion; but if found at one testing station they are not entitled, the examining offieers, to a further forfeiture for tests at other stations. Further, the average at such one testing station for that day and on the preceeding day and on the following day shall represent the quality of the gas said to be deficient; in other words, having found the deficiency they must

then proceed and average them, the averages of that day, the preceding day, and then the next day, and take that average, the final average to show the deficiency if there is one.

6808 On pressure there is simply a requirement as to a minimum, but nothing as to a maximum, as has been repeatedly brought out, and that must not go less than 6 between what you might call the daylight points, from midnight until sunset, I think it is, and from sunset to midnight, not less than one inch. The maximum penalty in that case is 10 pounds, and they are only permitted to assess one penalty in the 24 hours.

In regard to candle power, of course it varies with the companies. Two of the companies are 14, and one is 16. The large Gas Light and Coke Company is 16, the small Commercial Company and the other companies, such as the South Metropolitan, are 14. For the first half candle power deficiency there is only a 40 shilling fine or penalty, but even for the first candle and for every subsequent candle the fine shall not be less than 25 pounds and not more than 100 pounds, with only one forfeiture a day. But, if the deficiency is found not to exceed one candle, then the same rule applies as I have previously described with regard to impurity. They are to take the average of the day at that place, average that with the average of the preceding day, and with the average of the next following day, and that is to be taken as the candle power for comparison with the standard. Then it goes on to say that no forfeiture shall be incurred in any case with respect to which it is certified by the Chief Examiner that the defect of the illuminating power, excess of impurity or insufficiency of pressure, was occasioned by unavoidable cause or accident.

Furthermore this clause was modified in the latter Act in regard to appeals, and the fact is, by lists obtained by me from the

6809 companies, that most of the cases reported against them are finally remitted.

Mr. BURR: Have you got the references there to the statute which you have quoted?

The WITNESS: Yes.

Mr. BURR: Will you be kind enough to give them?

The WITNESS: I cannot give you a reference, Mr. Burr, for 1905. I do not know where it is published. I can let you have my copy. It is an official copy.

Mr. BURR: Is that the copy you had the other day?

The WITNESS: Yes, it is an official copy; and I can refer to the other one, the original Act.

Mr. KIRBY: Is it not in the Supplement?

The WITNESS: No, it is too late. It is only out in 1905. I do not think there is any publication as late as that. For 1880, you will find that in Michaels and Wills, 5th Edition, pages 180 and 181. I think you have got that. If not, I will let you have my copy. The 1905 Act is 5, Edward VII, Chap. 155, and that I can let you have if you like afterwards. It is all marked up, but you can read it.

Q. Do you find that even with this mild penalty and with the low

candle power coal gas, the Metropolitan and Suburban Companies of London maintain an average of only one-half candle above the standard of candle power?

A. In the year 1904 the Gas Light & Coke Company averaged 16.52 for a requirement of 16. The Commercial averaged
6810 14.9 for a requirement of 14. The South Metropolitan maintained an average of 14.7 for a requirement of 14. The average delivery was 15.78, but I have not averaged out what the average requirement would be. You would have to take and multiply the amount sold by each one, which I had to in the other case.

Q. You have not the suburban companies there, have you. May I take the sheet?

A. You cannot get any average from that. They run from 14.50 up to 16.50, the suburban companies, with all sorts of different requirements. You would have to take each one individually in order to work that out. You would have to take Fields for that.

Q. Have you Fields here?

A. Yes, I have it here. It is in the second main column with the two sub columns "Required or Delivered," I think it is. That is 1905.

Q. I have the figures here, if you do not mind my leading the witness to that extent?

A. That is 1905, and I think I just gave the other.

Q. Don't it appear in Fields' Analysis that Brentford maintains 15.60 as against required 14?

A. Yes.

And Bromley maintains 15.55 as against the requirement of 14?

A. Yes.

Q. And Croydon 15.25 as against 14?

A. Yes.

Q. And Hornsey 15.90 as against 15?

A. Yes.

Q. And Richmond 15.70 as against 15?

Q. And Wandsworth 15.51 as against 14, amongst others?

A. Yes, that is right.

Q. Professeor Bemis refers to the oil contracts of the Consolidated Gas Company with disapproval and says that the different stations could divide the contract as Philadelphia did; have one station supplied by one oil company, and one by another oil company. Is the case in New York parallel to Philadelphia?

6811 A. No, I think not. New York has a very much larger quantity of oil to use, and it is a much more serious problem to cover such a large field and be sure of having a supply. For instance, Mr. Bemis mentions Philadelphia. The amount of oil used by the Consolidated Gas Company and other gas companies coming in under the contract in 1905, was 32 per cent. more than Philadelphia, Newark, Jersey City, New Haven and Baltimore added together was, and that was for 1906, which are the figures I have obtained. We will presume that showed a little increase over 1905.

Q. Did you hear Mr. Addicks's testimony, that in case they abandoned the Standard Oil Company contract it would be necessary and

prudent to have a large storage capacity of three months. In view of the fact that there was no other great storage capacity than the Standard Oils in this vicinity?

A. I did.

Q. Do you approve or disapprove of that?

Mr. BURR: I object to that.

Q. Well, what would be your view on the subject? I will put it that way?

A. I will put it in this way, that I should not want to advise or undertake the responsibility in such a case, unless I know there was a very large storage supply available and at my disposal.

Q. Mr. Bemis, at page 3252, being asked how they did in Massachusetts in connection with the Municipal Act, to which his attention was called, and as to whether there was any provision whatsoever for a Sinking Fund in that Act, replied that he understood there was. Is there any provision in that Act for Sinking Fund that you can ascertain?

A. No, there is not.

Q. What is it?

6812 A. It is a requirement for the taking of three per cent. on the investment, less land and appurtenant water rights, charging that up to the cost of gas each year, and that amount is to be expended from year to year for renewals and extensions so far as that amount is large enough to pay for the extensions or renewals. In other words, the amount is at once re-invested in the business, as required, as an offset against depreciation. It is true that that three per cent., as named in the Act, can be modified by the Commission. They have the right to do so, but they have not done so; and in the case where they were asked to modify for Holyoke at five per cent. they refused to do so, before the new law went into effect changing it from five to three.

Q. Did you, as Mr. Bemis had, have any conference or communication with any member of the Commission?

A. Wishing to be very sure of my reading of the Act I communicated with the chairman, Mr. Barker, and found that my reading of the Act was entirely correct.

Q. Have you his letter, if counsel desire it in that connection?

A. Yes.

Q. Mr. Bemis said in reference to the hazard of explosion, which perils among others would be covered by the reserve fund, that he had heard of no other explosion as costly to the company as in Boston, and that its occurrence anywhere else seemed improbable. Is it the fact that explosions of that character, and disastrous ones, are unusual in your experience and knowledge?

A. It depends upon the meaning of the word unusual. They occur, and we have to look out for them. We had a very bad one in Philadelphia, at Market and 6th Streets, last year, the money cost of which has not yet been determined on account of suits pend-

6813 ing and all. There was a very bad explosion in London, in Southampton Row, Holborn, I think it was. I found that

the Gas Light & Coke Company was permitted to write up a portion of the cost of that explosion, to the extent of eight thousand pounds, to its insurance fund during the last half of the year 1904.

There was another bad explosion occurred a good many years ago in Liverpool. That led to the loss of a very large sum. My recollection is—the whole thing was described to me in detail by the Chief Engineer, who was a personal friend—that it resulted in the burning down of docks and so forth, and they had actually to pay out of their treasury 450,000 pounds, or $450,000—we will assume it was $450,000—and of course we know such explosions are occurring continually in a small way. I should expect such a hazard to be very largely increased with a high pressure system.

Q. Mr. Bemis, at page 3519, says of the cost of the repairs of the Consolidated Gas Company, 7.16 cents, that this seems to be high and no doubt repairs and depreciations will be within the 10.89 to which reference has been made, and he refers to your testimony in Holyoke and to Mr. Cowdrey's testimony in Chicago. What was the testimony on those occasions, as it relates to this point of Mr. Bemis?

A. My testimony in Holyoke was guarded all the way through with a statement that I was referring to Holyoke and that I had been repeatedly asked to give general statements, and that I had refused to do so; that it was not my practice to do so; each cost must be considered by itself, taking into account construction and everything else. There I mentioned repairs and renewals and depreciation, 11.27—small works in a cheap town. I do not read Mr. Cowdrey's evidence quite as Mr. Bemis seemed to. Mr. Cowdrey put from 8
to 9 cents in for repairs and renewals for water gas plant
6814 alone, or for coal gas plants 10 to 12 cents, and then allowed
10 cents to take care of future depreciation and emergencies. Then he recapitulates by taking 20 cents for repairs, renewals, depreciation and contingencies.

Q. That 20 cents covering the same items would be such as you allow, practically the same or more than you allow in your estimate for the New York situation?

A. Yes, that is more than I allowed for the same thing.

Q. Referring to Mr. Marks' testimony he stated at page 2383 that you neglected to place any limit as to the length of time within which your 5 cents per thousand extra for reserve fund would be collected from consumers, and at page 2390 he corrects that by saying that, on thinking the matter over, he recalls that you lately had agreed that the reserve fund should be terminated when 10 per cent. of the capital or investment was reached?

A. Yes.

Q. Now, as a matter of fact, the first time you appeared on the subject was before the Commission of Gas and Electricity of the State of New York, was it not?

A. It was.

Q. What did you say on that occasion?

A. Page 1700 of the report of the case before the New York Gas and Electricity Commission, printed "I add for that, I just ex-

plained, for reserve contingencies and hazards 5 per cent., making 21.77. Now, I would like to supplement, of course, that five cents by saying that I would like it distinctly understood that that in my opinion is a reserve and should not be called an actual expense in the business, but should be treated as a reserve, and having grown to certain dimensions should be there stopped and not allowed to increase again until drawn upon, following the English practice.

6815 Q. But in this case your testimony appears at page 1497, where you stated that the reserve should accumulate until it reached one-tenth of the investment, did you not?

A. I did.

Q. Mr. Marks at page 2372 advocates a single system of mains for the City of New York. What would this involve, and what would you say as to the wisdom of such a substitution?

A. Well, first it would involve a fairly complete abandonment of all that they have got in the streets now, but I will go further than that and say that a single pipe system in many of the streets of New York, especially the important streets, would not be in my opinion a practicable method of distributing gas in New York City.

Q. Mr. Marks testifies at page 2385 that the price received for gas in Philadelphia was 78.1, is that the fact, Doctor?

A. No, sir.

Q. Is there any gas sold in Philadelphia at that price?

A. I think not.

Q. As a matter of fact, to reach that 78.1, does not Dr. Marks include all the gas sold to private consumers, and also all the gas which is delivered to the city, as part consideration for the rental, in the price received from private consumers only?

A. He does.

Q. If he divided the price received from private consumers by the gas sold to private consumers, he would get, would he not, a dollar, or practically that, as the cost of gas sold?

A. Yes; I can show it perhaps by a statement rather clearly. If you take the gas sold to citizens at a dollar—I am taking the figures from Dr. Marks, and using his figures, but simply readjusting them—40,243,341 M feet, we have $40,243,341. If you take the city's gas consumption, at a dollar, we have 4,639,900 M feet, or $4,639,900. This would make the total receipts $44,883,241.

6816 Against that we would have rental-royalty I think Dr. Marks calls it—Column 4 of his table $3,758,477, gas equivalent at $1 as above. That is gas that is given free, now, put down in dollars and cents $4,639,900; then we would have as the total rental paid to the city for the use of its plant $8,398,377, which would amount to 18.71 as the rental paid. Now, the cost of lighting, meter inspectors and so forth, given by Mr. Marks, Column 7 of his table, excluded from the price $1,113,528; this would make the total rental and cost of lighting and repair and meter inspectors $9,511,905, that last item of lighting and repair being 2.48 cents per thousand. Then there remains to the U. G. I. to cover the cost of gas and return on the U. G. I.'s investment, and only on their investment,

$35,371,336 and that amounts to 78.81, and that is where the 78.81 comes from. You take all those amounts together and foot them up, the average selling price would then be $1. You can turn around and say you sell it to the city at a different price, and get a different result. For instance, I have got another statement made up on the same lines, only in this case I assume that the gas is sold to the city at 90 cents. In that case the average selling price comes out at 98.96, and still the U. G. I. has remaining to cover the cost of gas and return on the U. G. I.'s investment just the same sum of 78.81 cents.

Q. As to the U. G. I. Company, if I understand you correctly, and I wish you would correct me if I do not—I am simply trying to get at the facts—they have to earn no return on the investment in the city's plant which they operate nor do they have to pay any taxes on that plant?

A Not at all.

6817 Q. And all they do pay is paid to rental in the shape of gas to the city and ten cents per thousand on the gas they sell to private consumers; is that correct?

A. That is included in the 21.19 cents of my first statement, which added to the 78.81 makes up a dollar. That has to include the return on the city's investment in plant. The U. G. I. Company has, according to Mr. Marks' own statement—I have not checked that up—an investment of $2.15 a thousand in its part of the plant, and it does have $2.15, according to that, which they have to earn on it. There are other reasons of course that you could bring into this, as appear from a summary of the lease. For instance, fourth in the lease—the U. G. I. is protected from competition and has exclusive rights——

Mr. BURR: I object to that unless the lease is offered in evidence.

Mr. MATHEWSON: It was commented on here by your own witness, and is put in Dr. Marks' affidavit, to which we have had access.

The MASTER: Is that the same thing which was called the contract dated November 12th, 1897?

Mr. MATHEWSON: Yes.

The MASTER: Your witness has testified about that.

(The paper to which Dr. Humphreys refers is marked for Identification Complainant's Exhibit No. 391).

The WITNESS: Now, you wish me to comment on that ordinance?

Q. Which is the ordinance to which you now refer?

A. It is entitled an ordinance of the City of Philadelphia,

6818 approved November 12th, 1897, authorizing lease of the Philadelphia Gas Works to the U. G. I. Company.

Q. Yes, briefly, if you will?

A. Page 4. It protects the company from competition by giving the company exclusive rights; page 4, also, the company can do its own paving; page 5, can occupy any subway that should be built by the city without rental; page 8, can terminate in ten years, January 1908, upon notice; the city must then reimburse for all extensions and so forth and improvements with interest at 6%, simple interest. That is page 9 and 10. Page 11, if the lease runs to December 31st,

1927, the City gets works and improvement without payment to the company. Page 12, the company to expend 5 millions of dollars in three years and at least 15 millions in thirty years; page 13, need not extend pipes, unless one consumer for each hundred feet guaranteed; page 14, 22 candle power is the standard daily average unless prevented by accident beyond the company's control; penalty $500, not for each violation, but for each day; fine to be returned if the company shall show fault beyond its control; page 15, free street lamps to the number in use at the first of the lease, but not to exceed 300 additional each year thereafter; pages 15 and 16, price to be $1.00 unless changed by ordinance; then limited as follows: December 31, 1907, 90 cents to be net to the company, 90 cents; December 31, 1912, to be net to the company 85 cents; 1917, net to the company 80 cents; 1927, net to the company 75 cents. The U. G. I. in addition is to pay $10,000 per year to the city for inspection and some other little items. Page 18, the company only pays to the city money as received. I read this to mean that they do not have to pay on bad debts. Page 16, the company can
6819 collect penalties from consumers if bills are not paid in 5 days, according to the old rule. In other words, instead of giving discount to consumers for prompt payment they can penalize them if they are not paid in 5 days. I do not imagine that they follow out such a rule, but they are permitted to do so.

Q. I do not want to spend any time on the question I am now going to ask you, but Mr. Marks was asked in reference to a proposition involving the extension of the lease for 30 years, was it, from 1905, or 75 years?

A. 75 years.

Q. 75 years, for which he said the company offered 25 million dollars, (that is page 3760) to the City of Philadelphia?

A. Yes, sir.

Q. To be paid in the future, and this was cited by Marks as showing how valuable the situation was?

A. Yes.

Q. What is the fact in reference to that, and how onerous would such a contract be covering that long period?

A. Well, to provide for the capital invested at the end of 30 years, it would have been necessary to put by if I recall, 1.78 per cent in a 4 per cent. sinking fund; and here is an eminently appropriate place to show what a sinking fund is really intended for. They would not want to invest that in the plant; having already invested it, they want to find some means of paying it back, because the assets would not be there at the end of 30 years; they would have to deliver them up without extra payment. I have not attempted to spread out on the thousands of feet by endeavoring to estimate what the sales would be, but I have simply taken the sales at the average of what they were in 1904, the actual sales to the consumers on which they got their money taking 1.78 upon the 16 millions, which was the amount named by Mr. Marks as having been already spent, and the amount brought into his statement.

6820 Q. Spent by the U. G. I. for plant?

A. For improvements and repairs and all the rest of it,

which they would have to sacrifice. I find it would take $284,800 a year, or, 4.18 cents per thousand. Now, so far so good, up to the time 1905. In 1905 when this change of lease was contemplated there would have been accumulated by this process $2,624,147. Now, if that was allowed to accumulate without any additions whatever, so as to relieve the company entirely of any further additions, and take care of the money we have to sacrifice, and we take the 16 million dollars and add to it the 25 millions which they would pay, making 41 million dollars in all, I find that the accumulation at 4% compound interest would at the end of the lease amount to $49,714,465, so that they would have left about 8 million dollars to cover any further extensions and additions to plant that they might find it necessary to make.

Q. In other words, if they had provided or reserved up to that time when they retire their investment the mere accumulation at compound interest of that in future would take care of the entire 25 million dollars that they would have to pay, the entire 16 million dollars in the plant already spent, and 8 million dollars more?

A. That is right, sir.

Q. I will ask you one question as to maps of mains. For what purposes are maps of mains kept by gas companies ordinarily?

A. They are ordinarily kept for ready reference to see what mains they have in the street and what streets are occupied with mains and the size of the mains.

6821 Mr. BURR: I object to that. The question is what the maps in the office of the Consolidated Gas Company — kept for?

The MASTER: I do not see that it is important. You covered that fully.

Mr. MATHEWSON: I think so; *de mortuis nil nisi bonum.*

Q. We will refer to Mr. Hall's testimony for a moment. Has your firm of Humphreys & Glasgow acted and are they acting as accountants for gas companies, or accounting engineers to any extent?

A. Yes, you might call it that, but I would rather like to explain it, than give it a title. We have a very large number of plants for whom we put in apparatus all over the world, and we endeavor to keep that plant up to the mark by periodical inspection.

Mr. BURR: I think this was all gone into when Dr. Humphreys was qualified as an expert.

Mr. MATHEWSON: Not on this point.

Mr. BURR: I do not think it is pertinent to this inquiry at this stage, where we are rapidly drawing to a close, to go into a dissertation on the care and intense purpose with which they construct.

Mr. MATHEWSON: Not at all; give him a minute and he will be all through.

The MASTER: I presume he wants to show that he has some knowledge of accounts, to meet some points in Mr. Hall's testimony. You may go on for a moment or two, and if it does not appear we will rule it out.

Mr. MATHEWSON: That is the whole purpose.

6822 The WITNESS: It may be your purpose; it is not mine, because I think that I have qualified.

The MASTER: Shorten it as much as you can.

A. We have this intimate knowledge of the way the English accounts are kept, to enable us to make comparisons from year to year, we go through the accounts of these clients of ours, a certain number of them, now amounting to about fifty, and others that we have erected plants for are coming in all the time and adding themselves to this list. We send out each year to these people confidential comparative statements as to the cost of gas, and then suggestions as to how to improve results. This brings us into intimate contact with the English accounts.

Q. I want to ask first as to what your view is of the propriety of the exclusion of interest on taxes which are being tested under the advice of counsel. Is that a proper operating expense or not?

A. In my opinion it is.

Q. Mr. Hall at page 3366 said that he eliminated repairs to gas stoves. As to the English practice, he was doubtful. What is the English practice to the inclusion of repairs to gas stoves in operating expenses?

A. They include it.

Q. When asked as to the Parliamentary investigation expenses he said they would not be allowed by any competent accountant. What is the rule as to Parliamentary investigations, where the company is attacked or being legislated against?

Mr. BURR: I object to that because it does not appear that in the sense that Mr. Hall used the expression Mr. Humphreys is a

6823 competent accountant. He does not assume to be an expert accountant.

Mr. MATHEWSON: He will refer you to his authority; give him a chance.

The MASTER: I will allow it.

Exception taken by Mr. Burr.

A. I will say first that I do assume to be an expert accountant, and know a great deal more about accounts in connection with gas companies than any of the accountants who pose as expert accountants. What particular item do you refer to? I was embarrassed at the attack upon my ability.

Q. Parliamentary investigation. I refer now to the item of legal charges and expenses in connection with the investigation of 1905, which Mr. Hall has excluded as not a proper charge in the operating expense of the company.

A. The returns all show that provision is made for such charges in the regular way to operating expenses; but there is one exception, where the company has involved itself in such Parliamentary proceedings; and there it is left to the Board of Trade sometimes, or the auditor of the Board of Trade, to decide whether it shall go against income or whether it shall be charged against the profits, so to speak; in other words, a direct charge to profit and loss, but

there is no exception as far as I know in the ordinary Parliamentary proceedings, where the company is attacked, or on the defensive or in any other legal charges.

Q. That is to say, where the company is investigated or where they are opposing an act of Parliament, do the usual forms of account expressly provide that they are legal expenses and shall be a charge against operating account?

A. They do

6824 Q. Now, as to the section of public lamps charges, Parliamentary and law charges, in the nature of the expenses to which I have just referred, bad debts, stove repairs, and so forth, what authorities have you, if any, for objecting to the conclusion of Mr. Hall, Mr. Marks and others to exclude them or any of them?

Mr. BURR: He has not stated that he does object yet.

Mr. MATHEWSON: If he does not, I suppose he will say so.

A. I do object to the exclusion of those items, and the one chiefly referred to, public lamps, lighting and repairing—an item for them appears in the British Government returns and also appears as a special item in the printed report of the Gas Light and Coke Company. It also is to be found at page 88 of Michael & Wills, previously referred to. American Gas Light Association, uniform system, shows the item. Page 68 of the classification sheet of Blank 20, I think they call income and expense, whatever the title is; Massachusetts form for returns of companies, item 13, on income and expenses says, "For public lamps lighting and repairing (gas lamps only), then, ditto, other lamps," which I presume is a blank left for oil lamps, naphtha lamps, etc. In New York, the form of the return by the New York Commission shows under operating expense an item: "Operating and repairing street lamps."

Q. Mr. Bemis stated that he withdrew his three per cent. allowance for reserve fund which he made in favor of the company before the Gas Commission, because he ascertained here that

6825 the land of the company had appreciated in value since it was acquired by themselves, or the predecessor companies, and that the mains and services appeared to be worth more on account of the new and expensive pavement. I want to ask you whether that situation, in your opinion, would justify the exclusion of a reserve fund?

A. It would not.

Q. State briefly why?

A. Increase and appreciation in value of real estate would not pay for anything until that real estate was sold, and the real estate could not be sold until the property was vacated. It would add to the value of the assets of the company, but would not add to its earning capacity as long as it was occupied by a manufacturing plant. Therefore, there would be nothing to pay this charge from.

Q. What about the expenses of operation and renewals, so far as the more expensive pavement is concerned; what effect would that have on the situation?

A. The additional values that the assets might have by reason of the pavement being above the pipe would add to the burdens of the

company from an operating standpoint, because not only would the pipes to be laid in future have to be laid at a greater cost, but the operating expenses would be increased because the work of keeping the pipes repaired and renewed would have to be done at an added cost, due to the fact that the pavements would have to be renewed; so that if that were taken as compensating for depreciation, we have to compensate by the increased cost of our operating charges, which does not seem to me to be logical.

Q. If the increase in the value of land was due to moneys received from consumers of gas and put into new lands be-
6826 yond a fair dividend, or if the increase in the value of mains was due to a like action, the situation might be different, might it not?

A. Certainly.

Mr. BURR: I object to that as calling for a conclusion as to what might be the result.

The MASTER: It is answered already.

Mr. BURR: Then I move to strike it out.

Motion denied. Exception by Mr. BURR:

Q. As to the cost of gas, attention has been called to the fact that for one reason or another there is a difference of a cent or two between the cost of the Consolidated water gas stations and the New Amsterdam, and perhaps the Standard and the Mutual. I want to ask you as a practical gas man whether it is possible to get the identical cost of gas as between two companies operating even in the same city?

A. I do not know whether it is possible or not. I should consider that if I made an examination of two such companies and found such to be the case, it would be a most extraordinary case.

Q. Would you consider that a difference of a cent is extraordinary at all?

A. No, I should not.

Q. If you made a schedule of the cost of gas in London, to which Mr. Marks has referred and shown what it would cost in New York—Mr. Edgerton's theory (page 4742)—what does he call that?

A. Well, he described it in two or three ways. I have quoted it generally on the "one candle is good as another" theory, which I think is explicit.

Q. That is, it has to be reduced to the power of New York gas at an average of 24.18 at the test. Reduced to this basis the Gas Light and Coke Company would charge for candle power gas 24.18,
6827 101.19 cents, would it not?

A. Yes, raising it from 16.48, which they actually delivered to 24.18, which was the actual delivery for the last half of the year 1905, in New York by the Consolidated Gas Company after the standard was raised.

Q. And the Commercial?

A. 99.28.

Q. And the South Metropolitan?

A. 84.04.

Q. What is the average of the three?
A. 95.59.

Mr. MATHEWSON: I ask that this statement be spread upon the record in connection with Dr. Humphrey's testimony.
(The statement referred to is as follows.)

PRICES OF GAS. PRIVATE CONSUMERS.

New York and London.

Compared on basis Edgerton's theory "One candle as good as another" (p. 4742), on basis of candle power delivered 1905. N. Y. average latter half of year.

	Average candle power delivered.		London prices to private consumers, including meter rents, which, in N. Y., are included in price.	London prices adjusted on basis of candle powers according to Edgerton theory.	
	London.	New York.		Ratio.	Adjusted price.
			c.		c.
Gas Light & Coke Co.....	16.48	24.18	68.98	1.467	101.19
Commercial	14.9	24.18	61.17	1.623	99.28
South Metropolitan.....	14.6	24.18	50.75	1.656	84.04
Average of Three Cos.....	15.72	24.18	62.15	1.538	95.59

6828 Q. Now, as a matter of fact can gas be manufactured, all other things being equal, as cheaply here as in London?
A. It cannot.
Q. Why not?
A. Labor is lower there and materials are as a rule lower in price.
Q. Generally speaking, how would you say the price of labor varied in per cent. from the cost of labor here, as far as your observation goes?
A. I have not made an estimate in the form I would like to do it, by taking the number of men of each kind and averaging it up in the true way, but I should think it would run about 40 per cent., from the figures that I have been able to compare along certain lines. For instance, comparing the Gas Light and Coke Company of London with the Consolidated Company returns received from both companies within a month or so; the foremen are about 24½ per cent. more in New York than in London. I am now comparing prices in New York before they raised. Assistant foreman in the works, about 45 per cent., nearly 46 per cent. higher here. The coal handling men about 29 per cent. more. Carbonizing men, 43 per cent. more. Coke handling men, 45 per cent. more. Mechanics—well, that is rather an indefinite term, and we would have to match it up the best we could there. We have taken mechanics as they are described and put them against mechanics here. Of course that will vary, but there is about 35 per cent., in the figures

here, against New York. Mechanics' laborers or helpers, about 17 per cent.; gas fitters, 53 per cent. and over; gas fitters' assistants or helpers, 54 per cent. General laborers, 39 per cent.

Q. As to the cost of plant, to which some witnesses have referred, in Great Britain, is plant as expensive of construction there as here?

A. In general, no.

6829 Q. Is that due to the lower price of labor and material taken as a whole?

A. Of course, certainly.

Q. So that the production of gas would be less costly, and the amount of plant per thousand upon which returns would be paid, would also be less?

A. Yes.

Q. And is it possible, without taking into consideration all these features, to compare the cost of gas in Great Britain, or the cost of plant in Great Britain, or capitalization per thousand in Great Britain, with similar items in the United States, without careful an-lysis?

A. It is not.

Q. I think that is all, except that you referred this morning to computations respecting the results of Mr. Edgerton, or results which you obtained by taking Mr. Edgerton's figures, and you stated your total. Have you for the conve-ience of counsel detailed statements showing how the results are reached?

A. I have.

Q. Will you hand one to each of counsel? This first sheet is a computation taken from the papers sent to Mr. Bradley by Mr. Edgerton on 32.95 candle power oil gas, is it not?

A. That is right, and that cost is not shown in Mr. Edgerton's statements of cost because he shows the amount expended for each item, but before putting down the cost per thousand he reduces it to the basis of 17.6. I took and divided it up, each item for itself, just as it appears; namely, got it down to a basis of 32.95, which is what it purports to be, and so arrive at the cost of manufacturing the 32.95 candle power gas at Danbury, for manufacturing and leakage, as 90.5 cents per thousand, as shown by the actual figures given by Mr. Edgerton in his statement: Distribution, 9.07; Manufacture, 21.09; Bad debts, etc., bringing it up to 140.78 cents.

6830 Q. The figures that you use are his exhibit after the division?

A. That is all, in other words, I divided by the actual gas made.

Q. What does the second sheet show?

A. The second sheet shows on the theory of Mr. Edgerton what it costs to make 28 candle power gas, the 28 being one of the candle powers that he has taken for his New York ideal assumption, but I have also 50 candle power gas, both being enrichers, and I show in column 2 what would be the result of the Danbury basis, namely, cost of manufacturing 65 cents, against the cost that he took in his estimate for New York, at 34, and the Danbury gas cost on the basis of 50 candle power, 1.16 against his estimated of 48 cents.

Q. What is the third sheet?

A. The third sheet is the statement of certain averages as obtained

from the Danbury record. For instance, gallons of oil, average gallons used, average candle power, average candle power per gallon, and the coal per thousand, mixed gas.

Mr. MATHEWSON: I offer these sheets in evidence.

Received in evidence and marked Complainant's Exhibits, respectively, Nos. 392, 393, and 394.

Mr. KIRBY: I move to strike out all the testimony of Mr. Humphreys having to do with the letter purported to have been sent to Mr. Edgerton and received by Mr. Bradley, unless it be that with the letter accompanying statistics be placed in evidence.

The MASTER: I did not find this morning the page where it was referred to on the examination of Mr. Edgerton.

6831 Mr. MATHEWSON: Is that motion made on the theory that the letters are not proven? If so, I will ask Dr. Humphreys some questions, as he is perfectly familiar with Mr. Edgerton's handwriting, and has the original letters.

Mr. KIRBY: No, I am not taking any such captious ground as that. I am quite willing to admit on the record, after inspection, that the letters were written by Mr. Edgerton, and were sent to Mr. Bradley, but the letter is really a statement upon a certain theory in regard to making gas, and represents the results shown at Danbury, and results, I believe, shown at New Orleans.

The WITNESS: And some reference to them.

Mr. KIRBY: And Wallington, and it carries figures and statistics of all those places, and the references and statements are so interwoven that one taken without the other is certainly unfair and improper.

Mr. MATHEWSON: You can cross-examine the witness on it. The papers are here at your disposal.

Mr. KIRBY: I have no objection whatever to it all going in evidence, but I do contend that it is improper to place that letter, or part of the letter, in evidence in the way that has been done this morning, unless it is all placed in evidence, and the letter is not complete unless the data which accompanied it is considered as part of it.

Mr. MATHEWSON: It is marked for identification, and I am willing that it should be printed so that you can refer to it; but here is your witness who produces Danbury as the pet place where

6832 this process is going on, which he says he has consulted in reference to everything and he sent the statements for 1905 to our chief engineer, saying that the results at Danbury are thus and so. He then makes a statement of the cost of gas in New York, and puts it at about half of what the cost was in Danbury. Is not that pertinent? As to the method of introducing it, if you want me to support that, all the papers in connection with those letters may be marked for identification, or they may be marked for identification and printed. I have no objection. But I did not offer all that stuff here because I have not made any reference to it. It is simply the Danbury statement.

Mr. KIRBY: I stand on my objection. The witness made no mention of Danbury. It was brought out on cross-examination, and

reference to the letter was brought out on cross-examination, and now an effort is made to place in evidence a part of the document.

The MASTER: I cannot tell anything about this until I see it. I want to see a reference to the page where the matter first came up, and I would like to look at the document if it is important, and pass on it now. I should think it would answer your purposes to have it marked for identification and printed, because then, if your motion to strike out the testimony is wrongfully denied, you have got the matter before a court which can remedy it. That is the object of having these excluded questions taken, under our Federal practice. Now, if you get all this printed, as Mr. Mathewson suggests, you have got everything you can get out of it.

Mr. MATHEWSON: I do not want to offer it as evidence,
6833 because it does not seem to be evidence to me.

The MASTER: To save time I will deny the motion to strike out upon the stipulation made by Mr. Mathewson, here, that he does not object to having the papers printed, and having them marked for identification.

Mr. KIRBY: I will take an exception.

Q. I will ask just one more question of Dr. Humphreys which occurs to me. Do you know why the oil gas process of Mr. Edgerton was superseded at New Orleans. Was that through the pleas of promoters, or for any purpose connected with promoters, so far as you know?

A. No, it was to secure greater economy.

Q. When was the oil gas plant of New Orleans superseded by the water gas plant?

A. The oil gas plant in New Orleans was in part superseded; that is, the Edgerton process was in part superseded before 1890. They introduced about 1890 the double superheater water gas plant, in either 1890 or 1891; I was down there myself, and they took me out and showed me what they said was the only part of the Edgerton process remaining—two oil tanks.

Cross-examination by Mr. KIRBY:

Q. Speaking of New Orleans, what do you mean by the supersession of the Edgerton plant or the Edgerton system there?

A. Abandonment of its use.

Q. Did I understand you to say that was in 1890?

A. I said it was in part superseded at that time by what was known as the Meeze process.

Q. Are you familiar with the earnings of the company prior to 1890?

A. I don't carry them in mind. I know they paid dividends right along.

6834 Q. Do you know what dividends they paid at the time the Edgerton process was in operation?

A. I think I have it, from 1885 to 1900.

Q. What does that state?

A. Eight per cent., six per cent., five and one-half, five per cent., five per cent., five per cent., five per cent., five per cent., five per cent.,

five and one-half per cent., six per cent., seven and one-half per cent., eight per cent., seven and one-half per cent., five per cent., five per cent., five per cent.

By Mr. MATHEWSON:

Q. Respectively?

A. Yes; that last would be 1900.

By Mr. KIRBY:

Q. Was there any redemption of bonds during that period?

A. That I do not recollect.

Q. Have you any knowledge or information which would lead you to deny that $500,000 worth of bonds were redeemed during the years 1885, 1886, 1887, 1888, and 1889?

A. No, nor have I any means of knowing how much surplus they had without referring to table.

Q. Have you any knowledge or information as to the surplus after the year 1890?

A. No, not at present.

Q. Or as to whether or not there were bonds redeemed during that period?

A. No, sir; I am basing my calculations on what I saw at the works, statements and all that sort of thing.

Q. Do you know what the candle power of the gas was prior to 1890?

A. On this statement of Mr. Edgerton's referring to New Orleans and accompanying the Bradley letters appears the statement that in July 24, 1885, the candle power ran 32.10, the next day 33.33,
33.20, 33.60, 32.70, 31.80; July 27th, 34. The next one
6835 named is July 28th, 34 and then 33.33, 33.15. I imagine
in each case those are the different tests the same day. It is not very plain. August 4th, 33.15. I remember being puzzled at this, before this August 4th, then in the margin appears "July 28, 29, 30," etc. Taking the last named dates, July 28, 33.15, the next day 32.66, 33, 32.70, 33.20, 33.51; August 3d, 33.51; next day, 32.30, 32.80, 32, 33, 32.80; they seem to run about 32, sometimes to 34, sometimes 33. The last one I have here runs on to November 24th.

Q. And after the change from the Edgerton system have you any knowledge as to what the candle power was that was furnished?

A. No, I presume I have had information, but I haven't got any now.

Q. So it is your impression that it was about 20 candles or below that?

A. My recollection is that the whole system of charging was changed and instead of charging on a candle power basis they came back to charge by volume. When they changed the process I am not sure, but before that I know the charging by the meters was unsatisfactory, and there was considerable question as to whether the meters gave an accurate result, even on the changed candle power.

Q. And you have no knowledge of any increased capitalization?

A. Not accurate knowledge, no. There were great changes in regard to the holding company, recapitalized in a sense. It took on different forms through different holding companies.

Q. Now, in this assumption which you made of costs, or comparison rather, which you made of labor costs in England and labor costs here you simply made a comparison of the wages, did you not?

A. I made a comparison of the wages per hour, yes.

6836 Q. And to apply that to conditions in New York, or in this country, or to any other place than England you would have to assume that labor does the same amount of work, and that the same amount of wages is required to produce the same result, would you not?

A. Yes.

Q. You have spoken of the "one candle as good as another" theory?

A. Yes.

Q. Do you subscribe to that theory?

A. No.

Q. What is your contention in that regard?

A. My contention is that with a flat flame burner and considering the illumination of the flat burner alone, as far as the consumer is concerned he is getting his value, when he considers it by candles, but it does not hold true except in modified degree with regard to stoves and Welsbach burners.

Q. Speaking of the conditions of the U. G. I. lease in Philadelphia, for a moment, what do you understand that the company leases from the city?

—. It leases the works, mains, plant in general; leases the business.

Q. Everything which the company uses in the manufacture and distribution of gas?

A. It leases what Philadelphia turned over to them, with certain exceptions as to property they had to give up. My recollection is they had to abandon part of the plant at Market Street and Schuylkiil River, some exceptions of that kind, but it was a lease of the plant and a turning over to the company of its business—the city's business.

Q. And the company pays as a return for this lease or rental or whatever you might call it by furnishing gas to the city free of charge and paying at the present time ten cents on each thousand of cubic feet sold to other consumers?

A. Yes.

6837 Q. You have stated that you consider the conditions at Holyoke are those well qualified to have low figures of repairs, renewals and depreciation, that it is a "small and cheap town." What do you mean by "small and cheap town."

—. Well, it is not very well expressed. It is a small town and the living is cheap there and the prices that prevail are cheaper, you can get construction done cheaper, make repairs to your mains

cheaper on account of no expensive pavement, and many other conditions which I may have forgotten at present.

Q. Have you made any comparison of the wages paid at Holyoke with those paid in New York and elsewhere?

A. Not of all, but I made my very close examination at Holyoke at the time I testified as I did in regard to Holyoke, and I made my testimony applicable to Holyoke and Holyoke alone after having made an exhaustive examination of six weeks.

Q. Did you consider that in a small plant the repairs and depreciation and renewals were proportionately less than they are in a large plant?

A. Certainly not.

Q. You have spoken of the explosion in Philadelphia at Market and Sixth Street. When was that explosion?

A. I don't recollect the date. My impression is it was last summer.

Q. Was it not due to blasting in excavation going down in Market Street?

A. My recollection is it was something of that kind.

Q. You have spoken of and made a comparison of the oil contract in New York with the Consolidated and the U. G. I. in Philadelphia, and made a computation of the amount of oil used by Philadelphia, Jersey City, Baltimore and other companies. Will you let me have the details of that calculation, please?

6838 A. How is that, Mr. Mathewson? Having given the testimony as a whole, must I give it as to the detail?

Mr. MATHEWSON: Yes. I think if you have the details it is proper that you give them, making up the totals. In other words, you stated that certain cities did not use as much as the Consolidated. I suppose he wants the amount for each city, as you have it?

Mr. KIRBY: I do.

A. It is in round numbers:

Jersey City	8,800,000
Newark	10,000,000
Philadelphia	33,000,000
New Haven	2,000,000
Baltimore	7,700,000
Total gallons	61,500,000

Q. And the sources of your information were what?

A. Direct from the companies in each case.

Q. By inquiry on your own account?

A. Yes.

Q. From the superintendent or those in charge?

A. In every case higher than the superintendent, a good deal.

Q. Did you ascertain the gravity of these oils?

A. No. I was not concerned with that. I was simply dealing with quantities. I think they are all so called heavy oils, some around 28, that is my impression.

Q. You in your first testimony this afternoon gave some statistics from the calculations of a Mr. Grosser of Chicago?

A. Yes, Mr. Grosser, I think it is.

Q. In which he stated the average structural value per thou-
6839 sand cubic feet of sales was $7.23 and the average capital $8.47. Does this include both producing and distributing system?

A. I think it does. I certainly read it so. Now, that you raise the point——

Mr. MATHEWSON: Yes, it does.

Mr. KIRBY: I assumed that was so but the testimony was not specific.

The WITNESS: You go ahead, Mr. Kirby, and I will look it up and see. Yes, that seems to cover land, buildings, machinery, meters, etc., that was my impression.

Q. When you went to the U. G. I. in 1885, did they have any works in the city of Philadelphia?

A. No.

Q. Where did they have works?

A. They controlled works at Waterbury, Paterson, Jersey City, Pensacola, Yonkers, Savannah, Omaha, Kansas City, I think; Harrisburg and St. Louis; one works in St. Louis.

Q. Is it not a fact that during the period that both you and Mr. Edgerton were with the U. G. I. that Mr. Edgerton was going from one of these works to another making such examinations there as were thought by his company to be necessary and giving such advice to those in charge as he might be called upon to give.

A. Going to the works of the U. G. I. as named and giving orders at those works, you mean instructions for men to follow?

Q. Giving such advice on matters having to do with the running of the works, or so far as they might have arisen, or things which they desire to be advised upon.

A. If so, this is the first I have heard of it, unless it was something that was especially deputed to him at the time. I permitted nobody to give any orders at those works. Even the president of the company would not have been permitted to do it.

6840 Q. As a matter of fact was that one of Mr. Edgerton's most important duties to keep in touch with all of these works, so that any trouble which might arise in the operation of the same might be brought to his attention, and he could advise those managing them on it?

A. Certainly not.

Q. If he did go from one of these works to the other, and spent his time there, you of course would have knowledge of it?

A. Not necessarily, no, not unless I found my orders interfered with, then I would have knowledge of it.

Q. Did Mr. Edgerton take orders from you?

A. No, he was not in the operating department.

Q. Do you know what Mr. Edgerton's salary was from the U. G. I. at the time you went into the employ of the company?

A. My recollection is it was a salary of $5,000 a year.

Q. Would you not feel inclined to believe that it was $9,000 a year?

A. No, I should not be inclined to think so. If so the matter was incorrectly stated to me by other officers of the company.

Q. Have you any reason to doubt that Mr. Edgerton received during these years which you have mentioned, $9,000 a year salary, with enough to make up at least $25,000 a year in royalties on account of his patents which the U. G. I. at that time controlled and used?

A. I know that Mr. Edgerton had a contract with the U. G. I. on a salary basis of some kind and also on a royalty basis, I imagine. And I know also that the U. G. I Company after 1885 when I went in built none of the Edgerton process. Just where the royalties would come from I don't know. I don't know that I ever read the contract with Mr. Edgerton. I don't recollect it. I am not very positive as to what Mr. Edgerton did in connection with the operating department of the U. G. I.

6841 Q. Is it not a fact that during this period Mr. Edgerton was largely employed and spent much time on behalf of the company in experimenting with the Welsbach lamp for the use of gas oil and introducing gas oil into commercial use and upon high pressure system of gas for use in railroad and trains for the other purposes and did you not often consult with him in reference to these things?

A. I did not. I have no recollection of it. Might have talked matters over, naturally would, if we met, just as I would with an outsider.

Q. Did you not often communicate with him in reference to these various things?

A. I have no recollection of doing so. I might have communicated with him, but I want it distinctly understood that I did not consult with Mr. Edgerton nor was he concerned in the operation of those works which were under my direct charge. If I got any good suggestions from Mr. Edgerton, and he was capable of making them especially in laboratory work, I should undoubtedly have accepted them. I have no recollection, however, of anything of the kind.

Q. Was it not a fact that the U. G. I. at the time you came to it had merely its head office at Philadelphia, that when draughtsmen or a clerical force was necessary, they were used at the works at the various places you have mentioned or at the office of the contractors who had contracts for making or altering these works?

A. Of course, there was the necessary force at each works to conduct the business at those localities. The direction, however, was from the Philadelphia office and from the first my effort was so to concentrate the direction of that office so that they acted under the orders from the Philadelphia office, if it was more con-

6842 venient to do draughting or anything of that kind at those places, and if they had a man there that could do it, I presume it would give the orders to that effect. The fact was, however, that there was very little talent of that kind in the company at the time I took charge.

Q. Do you know who the president of the company was at that time?

A. At the time I took charge?

Q. Yes.

A. My recollection is that Mr. William G. Warden was at that time. I am not sure whether Mr. Stewart was not, or whether he went out just before that. My information is that it was Mr. Warden. *A.* I think it was.

Q. Is it not a fact that Mr. Warden was regularly in consultation with Mr. Edgerton in reference to the affairs of the company?

A. Not that I know of.

Q. Are you not aware that Mr. Edgerton purchased all the material for New Orleans, Wallingford, Pensacola, and Paterson Works of the U. G. I.?

A. I could not say about that. That was before my time. I testified as to the time after I took charge.

Q. Are you not aware that Mr. Edgerton before the expiration of his contract made application to the president and again to the directors of the company to be relieved from the contract so that he could take up work elsewhere?

A. That does not agree with my information, no.

Q. Is it not a fact that you first met Mr. Edgerton in New Orleans in 1886 while he was engaged in showing the New Orleans works to the trustees of the Philadelphia Gas Works?

A. If so, it has entirely passed from my memory.

Q. Do you remember meeting him at that time?

A. I do not.

Q. Are you not aware that the city authorities of Phila-
6843 delphia passed an unanimous approval of the methods shown at New Orleans and recommended their adoption at Philadelphia?

A. No, I don't recollect it. I don't deny it at all. I have no recollection one way or the other.

Mr. MATHEWSON: You mean the City Council of Philadelphia or New Orleans?

Mr. KIRBY: The City Council of Philadelphia, which went to New Orleans, passed an unanimous approval of the methods shown at New Orleans and recommended their adoption in Philadelphia.

The WITNESS: That does bring something back to my mind, now I think that Mr. Edgerton was engaged part of the time in endeavoring to get the Edgerton process introduced in Philadelphia and devoted a good deal of time to it as sort of an advance agent.

Q. And Edgerton's process at that time was under the control of the U. G. I.?

A. Oh, yes. I would like to supplement that by saying that particular point would not be so much impressed upon my mind as it was not until some years later that I was given charge of the contract department, as I originally stated in my testimony.

Q. I presume you are acquainted with Mr. Edgerton's researches in preparing petroleum products for gas making as anticipating the

present practice and as shown in Mr. Edgerton's United States patents?

A. I know he has taken out some patents but I never had any reason to think they were particularly valuable. It is judged by results in these matters rather than patents.

Q. Are you familiar with Mr. Edgerton's patents having to do with the fractionation of oil so as to obtain an oil for gas making purposes with as few fractionations as possible?

6844 A. I have read the patents. I have not looked at it in some time.

Q. With reference to the payment of money and the care of accounts, I ask if you were not aware that it was on Mr. Edgerton's report that the first money was paid out to Dr. Auer's representative, Mr. Montgomery, for the Welsbach burner patents?

A. When was that?

Q. In May, 1886.

A. That the first money was paid to Mr. Montgomery on the Auer patents?

Q. On the recommendation of Mr. Edgerton and on the order of Mr. Edgerton?

A. Unquestionably not on Mr. Edgerton's order. I have no recollection that Mr. Edgerton had anything to do with it. The subject was assigned to me when I had to get time from my other work to take it up, and I went over to Jersey City and set up apparatus there especially for the purpose and assigned to the work, if I recollect, my present partner A. G. Glasgow, F. N. Morton and one other man, I think J. M. Rusby, all graduates of Stevens Institute; and experiments were conducted for six weeks at the Jersey City works on the Auer burner, so-called Welsbach burner. I was repeatedly asked to make a report and repeatedly declined to make a report in recommendation, because my experiments were not completed. Dr. Henry Morton, my predecessor at Stevens, was also in consultation in regard to rare earth's minerals, and I consulted with him at great length. The final decision was made to make an advance payment, because as explained to me by Mr. Gibbs afterwards, the option or something or other was expiring and they could not wait for my final report and they would have to act more or less on a "flier" on my partial report of progress made. It may be

6845 I may have known in the past that Mr. Edgerton had some connection with it, but it comes to me now as a perfect surprise. I worked on that and went back and forth between Philadelphia and Jersey City for six weeks and set up special apparatus for the purpose, and I distinctly remember Mr. Montgomery coming in, almost forcing his way into the laboratory, at that time, and urging me to finish my report.

Q. Did not Mr. C. R. Collins have much to do in the making of those tests?

A. My recollection is that Mr. C. R. Collins did not come into it until later. When I was made general manager of the Welsbach Company in connection with my duties in the U. G. I., when I was general manager of the Welsbach for about six months, as they

wished somebody close to the U. G. I., to be in control, I made Mr. Collins, then one of the assistants in the U. G. I., chief engineer of the Welsbach Company, and as such laid out a very large amount of work to do in connection with the Welsbach. That was all after the work that I referred to. My present impression is that Mr. C. R. Collins was not in those original experiments.

Q. Do you know who ordered this first payment to Mr. Montgomery?

A. Who ordered it?

Q. Yes.

A. I guess it was ordered by Mr. W. W. Gibbs, and if you mean to imply it was ordered by Mr. Edgerton it certainly was not; he had nothing to do with the business of the company. The man whose hands it would finally have to go through, and certainly no payment would ever be made without him, is S. T. Bodine.

Q. Is it not a fact that the engineer for the Pintsch Company of Berlin came to this country in 1875, went to Reading, Pennsylvania, and there studied Mr. Edgerton's system of high pressure power lighting, Mr. Edgerton there using gas under a pressure up
6846 to 300 pounds, which was higher than any that had been used by the Pintsch Company at that time?

A. It is quite possible. There is nothing extraordinary in the fact that they should come to this country and try to learn whatever there was to be learned in addition to what they knew. The Pintsch Company did not run at 300 pounds and were absolutely opposed to it, and at the time I was chief engineer of the Pintsch I was in favor of raising the pressure of gas made from American oil, as it would stand compression a little better. They opposed the raising of it. They had the fixed idea of keeping to 150 pounds. The apparatus, however, I have myself used up to 300 pounds, showing it was merely a matter of opinion and judgment on their part as to the lower pressures.

Q. You had reference to the use of Tower scrubbers as early as the 60's?

A. Yes.

Q. Was there anything in the literature of gas making in this country or in England prior to the use of these Tower scrubbers in 1873 by Mr. Edgerton in New Orleans?

A. I am sure I don't know. I imagine if I would look through the English Journal I would find something. I am simply basing my statement as to the erection of these scrubbers by the statements from the people in control.

Q. Referring to Faribault for a moment, do you mean to say that the mains which Mr. Edgerton laid himself, or others which were laid under his direction were not laid in the manner which he has testified to in this hearing?

A. I don't know anything about what mains Mr. Edgerton laid in Faribault. I don't know that he ever laid any there. I don't know that he ever gave any directions. My recollection is he
6847 quoted Faribault as an instance where they followed this practice of shallow mains.

Q. Didn't you read his testimony to the effect that he had laid mains there and that mains had been laid there under his direction and as to how he put them down?

A. I don't recollect just what he said. The general impression he stated about Faribault—there was a certain practice followed, and as to their practice I say it is not their practice. Certain pipes may have been laid there, I think that is probably so, and they found the practice wasn't a good one and abandoned it.

Q. When do you consider that such practice was abandoned?

A. That I don't know. I have got the statement that that is not their practice.

Q. Is that from knowledge you have yourself?

A. I have the information from the secretary of the company, Mr. Cowperthwait, dated November 24, 1906.

Q. And that is the letter which I think Mr. Mathewson had and referred to in his cross-examination of Mr. Edgerton?

Mr. MATHEWSON: I think so.

A. I don't recollect about the cross-examination.

Mr. MATHEWSON: I think so, Mr. Kirby.

The WITNESS: It is the one that states that the main feeders are down 5 to 7 feet.

Mr. KIRBY: There is no need of pursuing that further because I think Mr. Edgerton was examined on that himself.

Q. You have spoken of light oil and heavy oil, stating that in your opinion the lighter oils were better than the heavier oils. Is it not a fact that a heavy homogenous oil is better than a
6848 lighter non-homogenous oil?

A. I didn't make any such general statement, Mr. Kirby.

Q. Then I ask you the latter question: Is it not a fact that heavy homogenous oil is better for gas making than a lighter non-homogenous oil?

A. I wouldn't want to say yes or no to that, Mr. Kirby. I am perfectly willing to talk on it. I should not like to use a lighter oil with a wide range of gravity so that I would have to carry varying heats, but I don't want either a very heavy oil such as 28 degree oil that at present is coming into the market to such an extent.

Q. The matter of "Homogenousy," if you may use that term, of the oil, plays a very important part with its proper use for gas making purposes, does it not?

A. I prefer very much to have an oil within a short cut of temperature.

Q. Having read Mr. Edgerton's patent on the subject of oils and the fraction thereof, for gas making apparatus, isn't this the chief claim of that patent?

A. I do not recollect the patent. It did not make much impression on me.

Q. I ask if you will show me anything in Mr. Edgerton's testimony which states that he does not consider it necessary to use more oil in winter than in summer to obtain the same candle power?

A. I don't know as I can at the moment. I think I could do so by looking through. He plainly intimated that it was not necessary to run more oil in winter than summer.

Q. I think you have taken an entirely wrong inference from his testimony?

A. The evidence will show that of course. If I have, I apologize.

Q. Referring to Danbury, I ask if you do not know that the depreciation at Danbury is chagred to profit and loss after operating expenses have been accounted for and that the inclusion of
6849 the depreciation item in the letter to Mr. Bradley was simply for information to give the amount of that item to Mr. Bradley?

A. I simply know what appears in that sheet. I don't know anything about the Danbury books outside that and there it appears as a separate item in that statement, showing what the gas costs. How they cover it in their books I don't know and I don't think it makes any difference whether you write to one account or another, it would have to be paid for by the gas receipts.

Q. That of course is a matter of argument?

A. No, I don't think it admits of any argument whatever.

Q. Two men might differ?

A. They might, of course. You can find them.

Q. Referring to Danbury again do you not understand that the candle power test at Danbury, the results of such tests being included in that letter to which you have made reference as made with a one-foot burner consumed two feet of gas per hour?

A. I don't know whether it is a one foot burner, or what it is. I did understand it was a two-foot pressure burner.

Q. If it were made with a one-foot burner consuming two feet of gas per hour, and if in place of such a burner one were used giving a flame of 25 candles as against 14 candles given by the one foot burner, burning the 2 feet of gas per hour, would not the candle power be raised to 44 candles?

A. I don't know what it would be raised to. I think probably you would get somewhat better result.

Q. A better result than 44?

A. No, a better result than the result obtained with the two foot burner; the two foot consumption

Q. Do you know how much better?

6850 A. No, that would depend upon the gas and its constituents.

Q. On the same gas taken?

A. I say it would depend on that gas as to how much difference there would be as to your method of testing and no man living could tell you that without making an experiment; there is no rule that would apply.

Q. Have you made experiments upon various gas with different burners?

A. I have done a great deal of such work.

Q. Let us assume the gas of candle power manufactured in the way in which Mr. Edgerton has set down in that letter as being used at Danbury, can you tell within say 3 candles?

A. No, not without knowing the gas.

Q. Your experience would not give you sufficient information to draw a conclusion?

A. Certainly not.

Q. Referring to Complainant's Exhibit 392, cost of Danbury gas of 32.95 candle power and pro rata of 24 candle power New York gas based upon the equivalent light theory of H. H. Edgerton are you familiar with the method used at Danbury in ascertaining their candle power?

A. I am familiar with the methods used in these calculations because Mr. Edgerton shows them in his papers and they check out. It is simply a proportion of candle power.

Q. We have here a 32.95 candle power at Danbury?

A. Yes, sir.

Q. I have just asked you in reference to the kind of burned used there and the number of cubic feet of gas burned and the candle power of the flame?

A. Yes.

Q. And as I understand it you are not familiar with the method of taking their candle power, other than that you understood they used a one-foot burner and they used a two-foot flame. That
6851 I understood; as to whether or not it was one foot, I did not know or I have forgotten if I ever knew. I understood that they themselves state the candle power—Mr. Edgerton states it as 32.95, and my impression is that although they state it as 32.95 they charge the people on the basis of its being 44 candle power.

Q. And if it be that they charge the people on the basis of 35, but if it be tested on the same basis as it is tested in New York it gives a candle power of 44, your comparison as set down in that exhibit would not be an accurate one, would it?

A. No, I should advise them to change their method of testing and have their tests conform to what they claim to be the fact in that case.

Q. I presume that in all works the methods of testing are oftentimes th- survival of old and different operations?

A. I think there is a good deal of the survival of the non-fittest. I have had to eliminate a great deal of poor methods in that direction.

Q. You have spoken of the loss in service pipes of about an inch pressure. Is it not stated in the proceedings of the Gas Association that house piping should be such as to confine such loss to within .3 to .4 inches?

A. The rule is a loss of 1 inch for each 50 feet of piping, but of course we have to contend with many houses that are not piped according to the rules. If the rules were always compiled with the gas man's life would be a much happier one.

Q. And such rules, if applied would bring an average drop of the amount that I have stated?

A. That would be the house alone. You still have the meter to contend with and the service. The meter alone may absorb .5, if there is a large amount of gas passing through it.

6852 Q. A meter properly proportioned for the passage of gas should not absorb so much as that, should it?

A. There is a great difference about that. Some authorities fix it as .5, and hardly any man fixes it below .3 for an average consumption. My recollection is that .2 is accepted as the minimum.

Q. And is it not a fact that Mr. Addicks has stated in the New England proceedings of the Society for Gas Engineers, that the drop in the house pipes, that is from the meter through the services should not exceed .3 of an inch?

A. I dare say. I should be very glad to state the same thing, and say it ought not to, but it will just the same in the houses we have to take under our wing.

Q. The gas companies have ruled, and endeavor to establish rules of piping, so as to keep the drop within these limits, don't they?

A. They do, and have no authority to enforce them, as a general practice. I have given a great deal of personal attention to that matter in a great many companies.

Q. And gas companies would be much happier if they were enforced, would they not?

A. They certainly would. The complaint desk would not be so busy.

Mr. KIRBY: I am through.

The MASTER: Mr. Burr, I want to consult your convenience. Mr. Mathewson says that he is finished with the exception of some odds and ends and will not take more than fifteen minutes, and will not involve any long cross-examination. I will give you such time to-morrow as you want. What time to-morrow would you like to begin?

6853 & 6854 Mr. BURR: Say ten o'clock.

The MASTER: You are entitled to first consideration.

Mr. BURR: I want to say in view of the number of schedules and tabulations which Dr. Humphreys has put in evidence, I think that a study of them overnight will shorten the examinations, and more than that, I now ask if you would be good enough to produce those records for 1906 from which you made your deductions, so that Dr. Marks may have an opportunity to examine them over night.

The WITNESS: There is no objection to that I imagine.

Mr. MATHEWSON: No.

The MASTER: Then, we will adjourn until 10 o'clock tomorrow morning.

At 5.40 P. M. adjourned to Saturday, February 2nd, 1907, at 10.00 A. M.

Last Exhibits:

Last Complainant's Exhibit, 394.
Last State's Exhibit, 000.
Last City's Exhibit, 236.

6855 Circuit Court of the United States, Southern District of New York.

CONSOLIDATED GAS COMPANY OF NEW YORK, Complainant,

vs.

JULIUS M. MAYER, as Attorney General of the State of New York; WILLIAM TRAVERS JEROME, as District Attorney of New York County; FREDERICK E. GUNNISON, JOHN C. DAVIES, and LUCIAN L. SHEDDEN, Constituting the New York State Commission of Gas and Electricity, and THE CITY OF NEW YORK, Defendants.

Before Arthur H. Masten, Special Master.

NEW YORK, *February 2d*, 1907.

Met pursuant to adjournment.

Present: The Master, Mr. Mathewson, Mr. Burr, Mr. Kirby, Mr. Page.

6856 ALEXANDER C. HUMPHREYS resumes.

The WITNESS: Before you proceed, I would like to draw attention to an omission on my part in those tables. Mr. Burr probably discovered that I referred to a certain letter from Chairman Barker, in connection with Arlington and Brockton, and as it is directly referred to for confirmation, I suppose the letter ought to be put in as part of the tables. The point is this, that in the case of Arlington and Brockton, the capitalization per thousand did not seem to check between the column covering that item, and the individual accounts of the company, so I wrote to the Chairman of the Board saying that I thought his figure was wrong in his deduced column, and this is his explanation of why he made exceptions, in Arlington and Brockton, but otherwise my process was correct. Of course, I had no means of knowing that there was a variation in those figures and only discovered it by finding that my figures as calculated did not agree with the Massachusetts Commission. The letter is as follows:

COMMONWEALTH OF MASSACHUSETTS:

Board of Gas and Electric Light Commissioners,
Room 145, State House.

BOSTON, *Nov. 14th*, 1906.

(Answered Nov. 15, 1906, by A. C. H.)

Mr. A. C. Humphreys, New York City.

DEAR SIR: We have yours of the 13th inst. giving result of your scrutiny of certain data in the last annual report of the Board and referring particularly to the Arlington and Brockton gas companies.

6857 In general, I may say that in computing "the capital per thousand sold including bonds," we have dealt somewhat

differently with the liabilities outside of capital and bonds from our treatment of those two items. That is to say, we have not intended to include notes and accounts payable except so far as, from the facts in our possession, they seem to be to a degree permanent in their character or clearly representing investment in plant.

In the Arlington case you will note toward the top of page 10 of appendix, the item "amounts due from the company not included above $12,457.70." Included in this is the item of $6,924 which for special reasons at the date of the company's return was in the form of an open account but represented the cost of plant additions and under the policy of the company would later be represented either by new capital or some permanent form of debt. We therefore included it in the computation and if you shall also do the same, you will, I think, make the figure of $8.45, as given on page 116.

In the case of the Brockton Company some exception has been apparently made to the usual practice. A large percentage of the floating debt, amounting to $112,235, represents, as we have reason to believe, a liability which accumulated under very peculiar circumstances in the company's history and which does not and never did represent plant investment or perhaps anything other than a loss growing out of speculation in the company's franchise. Being of this character and constituting a debt as to which we understand it is the company's policy to discharge as rapidly as it can, having no purpose to retain it as a permanent debt, we have not included it in our computation. It is true, of course, that it bears interest which constitutes a part of the burden upon the company and may on the whole be as clearly entitled to be counted a part of the capital as some percentage of the actual capital stock in many companies.

6858

I think these statements will quite fully account for the difficulties revealed by your study of the figures.

Very truly yours,

(Signed) F. E. BARKER, *Chairman.*

Cross-examination by Mr. BURR:

Q. How many gas concerns are you connected with, Doctor?

A. At present?

Q. Yes.

A. I am connected with the Consolidated Gas Company of Baltimore, and am president of the Buffalo Gas Company of Buffalo, and our firm manages the Gas Company of Lawrence; and then in the way I have described as advising companies, we are connected with something over fifty in foreign parts.

Q. And I understood you to say yesterday that *that* you were heavily interested in the Baltimore Company?

A. Yes, sir.

Q. Were you a witness in the investigation or suit in Baltimore regarding those companies here recently?

A. No.

Q. You know there was some investigation as to their capitalization and operation, a few months ago?

A. Yes.

Q. You have been in daily attendance here, Doctor, for most of the testimony that has been given in this inquiury?

6859 A. I have heard a great deal of it. I was not here in the early part, in the summer; I think I commenced about the first of September, somewhere around there.

Q. And you, as I understand, claim to have experience in the construction, installation and operation of gas works and gas plants?

A. Yes, sir.

Q. Both in this country and in Europe?

A. Yes, sir.

Q. And you regard yourself as having some peculiarly personal knowledge with regard to the keeping of accounts of gas companies?

A. Well, I feel that I am quite competent in that line. I have had a great deal to do with it, getting up accounts and as chairman of the committee that developed the uniform system of accounts for the American Gas Association, and I developed the system for the United Gas Improvement Company, and have given a great deal of attention to it.

Q. You are also familiar with the purchase of supplies for gas companies?

A. Yes. I do not give any special attention to it at present.

Q. You are the president of the Stevens Institute?

A. I am.

Q. And that is a college or school of technology?

A. It is.

Q. How often have you testified as an expert in these gas hearing- or where gas business is the subject of scrutiny.

A. My present recollection is that I testified for the Consolidated Company before the New York Gas Commission; in this case also; in two patent suits on gas and once or twice before parliamentary committees in connection with water gas introduction into Great Britain; that is my recollection. I have not done much of it.

6860 Q. Did you not testify in Chicago?

A. Oh, yes.

Q. Did you testify in Syracuse?

A. Yes, I did, but not as an expert; I was subpœnaed to testify as to facts.

Q. Regarding the gas business?

A. Well, regarding some papers. It was to identify a paper I went to Syracuse for, a paper I signed some years before when I was president of the gas company there.

Q. You testified in Holyoke?

A. Yes.

Q. Are there any others that you can recollect?

A. Yes, I testified very briefly in Norwich.

Q. And if I remember aright, you were president of the American Gas Light Association of America?

A. I was for one year. Presidents of late years are always elected for a single year.

Q. And you are connected with many allied societies?

A. Yes.

Q. And in your capacity, and acting as member or officer of these various societies you have from time to time delivered addresses upon the subject of gas operation and management of gas works and gas plants, etc.?

A. I do not remember delivering many addresses on the subject. I think I delivered one as president. I have written papers on the subject.

Q. Well, you have written papers and you have delivered an address that you recall, while you were president of The American Gas Light Association?

A. Yes.

Q. In that address did you not allude to the subject of depreciation, if you recall?

A. I think I did.

Q. How long have you been acting as consulting engineer to the Consolidated Gas Company?

A. I am not consulting engineer to them now.

6861 Q. Well——

A. That is, if you mean that I hold a definite position as consulting engineer.

Q. You are simply consulting engineer for the purposes of this case?

A. I am consulted with regard to this case and with regard to any subject which may come up in connection with it.

Q. Are you interested financially in the Consolidated Gas Company?

A. No.

Q. Have you ever been?

A. I don't think so. My firm I think has had stock in the company, but not personally.

Q. Does it still hold that stock?

A. I am not sure if it does or not; I dare say it does.

Q. In the address to which I have referred did you not state as follows: "To provide a definite scheme to cover deprpeciation, we must, as accurately as possible, decide upon the average life of the plant in question." And further: "Having decided in the case of each division what can be safely assumed as the life of this portion of the plant, we can refer to our annuity tables to determine what percentage of the original cost of plant annually set aside at compound interest will at the end of the period assumed provide a fund equal to the original cost. Having done this in the case of each item on our list, we can find the total amount to be set aside each year, and then find what percentage this represents the total original cost of plant, and this is the amount to be, after some manner, reinvested from the annual profits."

Do you recall using that language?

A. That sounds correct.

Q. And did you not further say *that* in that address:

"An important point is to determine at what rate we can invest the payments to our sinking fund. In these days of low
6862 interest bearing securities, five per cent. seems hardly attainable with safety. But if our business is a growing one, as it

must be if we are to continue in it long enough to make the question of sinking fund important, there will be the opportunity to invest this fund in legitimate extensions of plant required by increased demand for gas. There should not be the slightest difficulty in thus earning five per cent. on this special extension and sinking fund; and, bearing in mind that this new capital has the way prepared for it by the old, the chances are that the new portion of our capital will earn a considerably higher rate. We may then assume five per cent. as a safe figure. You so stated, did you not.

A. That sounds correct.

Q. I have read this from the address given by you as it is printed in the Progressive Age, page 484, November 1st, 1899.

A. Yes.

Q. And I hand it to you to see if I quoted correctly.

A. I do not think it is necessary, it sounds quite natural.

Q. Referring to your testimony in the Holyoke gas case, April 17, 1899, I call your attention to Vol. 2 of the printed record in that case, and especially to pages 242 and 243, and especially calling attention to the statements you made on page 242, that the Holyoke gas works had repair of works and current renewals in the year 1898, of 6.11 cents per thousand feet of gas made, you stated, did you not?

"Now, four cents would be enough for that by the ordinary practice. In the same way, coming to distribution, the repairs of
6863 meters, services and mains, and current renewals of those, come in at 5.166 cents. Now, 2½ cents I think will generally be considered as a fair and perhaps full amount for repairs in that department. In other words, there seems to be an excess of 5.77 cents per thousand, which would amount to $3,030. That is, 2.11 cents on 68,000,000 cubic feet made, and 2.5 cents on 60,000,000 feet sold, and I consider these ample to cover depreciation and final renewals. Q. That is for every thousand feet according to your allotment there is an expenditure apparently for repairs and renewals of something like five cents in excess of what should be so spent. A. Of what is ample to take care of a plant, yes. Q. And you say that that excess amply cares for the question? A. I do."

Q. That is correct, is it not?

A. Yes, sir.

Q. I have correctly quoted you in your testimony?

A. Yes, sir.

Q. Now, as a matter of fact, at Holyoke at that time, was not over three quarters of the gas made Coal gas?

A. About two thirds and one third, I think; that is my recollection.

Q. Your company in Buffalo of which you are president as I understand——

A. Yes.

Q. Has just recently made a return to the Gas Commission as required by law, has it not?

A. Yes.

Q. I call your attention to Question 14——

Mr. MATHEWSON: Now, if the Master please, he will recall that when Mr. Hazard, the secretary of the Commission was on the stand, that it was expressly said that we should have an opportunity to examine the reports of other companies in addition to the few
6864 selected which were here presented, and counsel for the defendants, the members of the Commission, stated that opportunity should be given us. Immediately in December we wrote asking for information. The Secretary did not give us information, he said the matter would be submitted to the Board. We have had correspondence back and forth and to this day we have not had an opportunity to examine those reports. We have been utterly unable to see them. I have the correspondence here, if it is desired to be shown, but it will not be disputed, I think. And we are in this position, we have been unable to see those, while apparently, counsel for the other side or the witnesses seem to have no difficulty whatsoever in getting access to the reports, and I want to say right here so far as the attorneys before the Master for the members of the Commission are concerned, I know they have acted in perfect good faith in reference to the matter, and have advised the commission that we should be permitted to see those papers, but we have not been permitted to do so, and of course now we shall lose any opportunity to examine them; but in view of this present suggestion, it ought to be stated now so the Master may understand it.

The WITNESS: May I state something?

Mr. MATHEWSON: Yes.

Mr. BURR: One moment. I will not delay my examination of this witness to answer the criticism of counsel because that relates to an entirely different matter to the question I have asked this gentleman, and pertinent to the statements made by him on his
6865 direct. Suffice it to say, the book from which I read was not obtained from the Gas Commission but from the city counsel of the City of Buffalo.

The WITNESS: I will let you know that those answers were answers prepared for the city counsel of Buffalo under the direction of the Commission and in accordance with their orders and given to Mr. Bemis as their expert, and he is using them in this case.

Q. I call your attention to question fourteen which was asked you yesterday and which you answered. The question calls for the following information, does it not: "A separate statement of operating "expenses for each year from June 30, 1901, up to June 30, 1906, "prepared in tabulated form and in accordance with the classifica- "tion of accounts used by the company," and I next call your attention to the answer you made to this question, and referring to the year ending September 30, 1906, will ask you after giving a total cost of distribution as 11.7 you did not deduct the income from the street lamp department, the gas stove department and the gas arc lamp department, 2.55 cents, and if you did not in the line below write the net cost of distribution 8.52 per cent.?

A. I do not recall the figures at all. I don't know that I ever saw that answer. No answers were submitted to me except where there was a question as to the figures and whether that was the form pre-

scribed, or whether it was the form we used at the moment, I am unable to say. The Buffalo Gas Company, I will say, does not use in all respects the uniform system of accounts, because——

Q. One moment. This is on cross-examination. Mr.
6866 Mathewson will bring out anything you desire on the redirect, but I am in a hurry to finish my cross-examination. Will you kindly look at the document I show you and see whether that question and answer appears there (handing book).

Mr. MATHEWSON: If the witness is not responsible for it, suppose it does? You are cross-examining an individual and not the Buffalo Gas Company.

A. Where do you find this, in tabulated form? That is the way it appears here.

Q. As a matter of fact——

Mr. MATHEWSON: I objected to the question. Did I get a ruling on that?

The MASTER: What is this, is it a return made by his company over his signature?

Mr. BURR: Yes.

The WITNESS: I do not think it is over any signature.

Q. Do you deny that that is made by the Buffalo Gas Company of which you are the president?

A. No.

Q. Are the accounts of that company kept in accordance with your instructions as president?

A. They are kept in accordance with my permission.

Q. How long have you been president of the Buffalo Gas Company?

A. Six or seven years.

Q. Have you ever had occasion to look at the accounts?

A. Every little while.

Q. Are they properly kept?

A. Properly kept for the purpose, yes, to show the facts.

Q. Now, then, I ask you to look at that report and refresh your recollection and say whether what I have read as purporting to be contained in that report is correct?

6867 Mr. MATHEWSON: I object.

The MASTER: Is there any ground for your objection?

Mr. MATHEWSON: I do not think it is competent.

The MASTER: Why is it not competent, if Mr. Burr intends to show that in this report there are some methods of bookkeeping, or some statements which are inconsistent with the theories which Dr. Humphreys has announced on his direct examination.

Mr. BURR: That is all the purpose.

Mr. MATHEWSON: I cannot see that it rebuts or it disproves anything, if it be so.

The MASTER: I will allow it and give you an exception.

Mr. BURR: It directly controverts the statement made by Dr.

Humphreys yesterday, with regard to the statement of keeping accounts of public lamps and stoves.

Mr. MATHEWSON: Exception.

(Question not answered.)

Q. Now, Doctor, did you not make similar reports for the past four years showing that as you kept your accounts in Buffalo you deduct income from street lamps and stoves from your operating expenses before reaching the net cost of distribution?

A. No.

Q. Won't you look at page 70 of the record and see if a similar entry showing that you kept your account in this same way the year before does not appear here?

A. No, this would not prove it was kept that way; it shows that form in that way.

Q. Do you desire to be understood as saying that you did not keep your accounts for the past four years in the Buffalo Gas Company in such a manner that you deduct income from street
6868 lamps and stoves from your operating expenses before reaching your net cost of distribution?

A. I am almost positive that we have not.

Q. I call your attention to page 4 of this report which may refresh your recollection in that regard. Question 14 calls for a separate statement of operating expenses for each year, from June 30, 1901, to June 30, 1906, prepared in tabulated form and in accordance with the classification of accounts used by your company, setting opposite each general heading and sub-heading the total cost.

A. Yes.

Q. Is not the statement appearing on page 70 the answer to that question, and the following pages?

A. I presume it is.

Q. And does it not appear by that answer that for the years from 1901 to 1906 you used the same method of accounting?

A. Not at all necessarily, no; not at all.

Q. I call your attention to the statement for the year 1904 and to the item of total cost of distribution and then underneath, less income lamp department, $11,431.75, less income stove department, $1,067.19?

A. Yes.

Q. The total cost of distribution, $87,945.92, and these two items being deducted leave net cost of distribution $77,581.36?

A. I will call attention to one fact right away. I have never seen that statement before, but I see that less income lamp department is given as $11,431.75, then it says less income stove department $1,067.19, and the total deduction is $10,346.56.

Q. I noticed that error in subtraction——

A. I do not believe it is an error.

Q. But the items are there and the statement is there deducting street lamps and stoves from those gross expenses.

6869 Mr. MATHEWSON: No, it would look as if you had taken street lamps and stoves, and that before you deducted them you deducted one from the other.

The WITNESS: That is the way it strikes me. They have taken the eleven thousand dollars and deducted the one thousand from it, and made a net of ten thousand dollars to deduct.

By Mr. MATHEWSON:

Q. Then they did not deduct stoves?

A. No, it does not appear that they did in that case. It may be different in other cases.

By Mr. BURR:

Q. Look at page 59, Doctor, purporting to give operating statistics in response to Question 14, operating expenses for the year ending September 30, 1905, and do you not find on page 70 the total cost of distribution is given there at $62,161.61 or .1119, and underneath appears the statement, income street lamp department $10,941.16, income gas stove department, $1,888.19; income gas lamps department, $1,737.92, total income $14,567.27, net cost of distribution $47,594.34.

A. That is right. In this case those items all seem to be added in for the deduction. Yes, in that case they are all added together before the deduction is made. I would say that .1119 or something probably means fraction of a dollar and not of a cent.

Q. Does not that same thing occur in the statement in regard to the operating expenses for the year ending September 30, 1906? Does it not appear on page 72 as follows:

Total cost of distribution	$61,351.78
Income street lamp department	10,138.28
Income gas stove department	1,720.69
Income gas arc lamp department	2,306.81
Total income	14,165.78
Net cost of distribution	47,186.00

6870 Does it not so appear there?

A. That is right.

Q. You testified yesterday that you could not argue from the cost of gas in the Lake cities as to the cost of gas in New York, because there were such differences in the cost of manufacture, did you not?

A. Yes, that is right.

Q. Are you aware that in the recent Chicago gas hearings the People's Gas Light and Coke Company reported that its cost for manufacture was 31.8193 and that it supplies 22 candle power gas at the testing stations?

A. That sounds familiar.

Q. Are you not familiar that by law this company must supply 22 candle power gas at testing stations at a distance from the works?

A. That is the requirement, I believe.

Q. And that is the company that reduced its rate to 85 cents, is it not?

A. Yes.

Q. You have referred to the profits of the seven largest Massachusetts companies outside of Boston, Cambridge, Fall River, Lynn,

Lowell, Springfield, and Worcester. I call your attention to pages 103 and 104 of the Massachusetts Gas Commission report for the year ending June 30, 1905, which is the last report in print, and ask you whether it does not appear that the dividends in Cambridge were 19.3 cents, in Fall River 19.77——

A. Yes, those are dividends, amounts paid per thousand for dividends.

Q. Lowell, 19.70 cents per thousand feet?

A. Right.

Q. And Springfield 21.18 per thousand?

A. 21.18, yes.

Q. And in Worcester——

Mr. MATHEWSON: Just a moment, Mr. Master, Professor Bemis, when he was on the stand, or Dr. Marks, put in all this evi-
6871 dence as to the amount paid in dividends in these various cities. We in our rebuttal testimony have shown from the same reference that if they paid that amount in dividends they were allowed to earn such an amount upon their capital and that their dividends did not represent all that they were permitted to earn over the operating cost of gas. They may have carried it to surplus or used it in extensions; it does not seem to me it is very valuable to go back again and ask if they did not pay so much dividends, which is not what we are rebutting here.

Mr. BURR: I am leading up to a statement which he made yesterday and calling his attention preliminary to it, by asking the question I am.

Q. I want to call your attention to Worcester, 20.21 cents.

A. That is right.

Q. The only one omitted is Lynn, is it not, of the seven companies.

A. What are the seven?

Q. Cambridge, Fall River, Lowell, Lynn, Springfield and Worcester.

A. I think you have omitted another one. Is not Lawrence in that bunch?

Q. Well, assume Lawrence to be in it, I think it is, according to my recollection. Lawrence and Lynn are left out, because they are both combined electric light and gas plants, are they not?

A. They sell both gas and electricity, yes.

Q. Now, if you will turn to the appendix of this same report in order to determine how much should be added to these companies on account of interest payments do you not find that the sum of interest in Cambridge as given on page 27 of the appendix is $9,413.31?

A. That is right.

6872 Q. While the sales, as given on page 116 of the main report were 439,162,251 feet?

A. That is right.

Q. I will now call your attention to the Fall River Company, page 52 of the appendix. You observe, do you not, that the interest stated there is $3,521.17?

A. Yes, sir.

Q. And you will observe in the main report that the sales for Fall River were 321,119,341?

A. Yes.

Q. Now, referring to Lowell, page 81 of the appendix, don't you find the interest as stated there $734.45?

A. Yes, sir.

Q. And on page 116 of the main report are not the sales given at 482,088,600 feet?

A. Yes, sir.

Q. Referring to Springfield, page 128 of the appendix, don't you find that the interest payment was $391.22?

A. Yes.

Q. While on page 117 of the main report the sales are 311,678,930?

A. Yes.

Q. And on page 152 of the appendix in the case of Worcester, the interest was $1,828.72, was it not?

A. Yes.

Q. While on page 117 you find the sales to be 410,641,700?

A. Yes.

Q. Now, with respect to the Boston company, which was the largest company before the consolidation, you find, do you not, on page 21 of the appendix that the interest payments were $50.53.

A. I find an item of $50.53 as against interest paid. It has no meaning for me in that particular case.

Q. While the dividends per thousand feet of gas sold as given on page 103, was 18.9 cents.

A. Yes.

Q. With respect to the profits, the Massachusetts gas com-
6873 panies are allowed to make and could put into their plant aside from what they pay out in dividends and interest, you are aware, are you not, that it has for many years been the position taken by the Massachusetts Gas Commission, that if profits are put into extensions, the time will ultimately come when the plant being thus paid for, the price of gas will be so reduced as to include only a return on such capital as has been actually put in by the stockholders?

A. No, I don't know anything of the kind. I think they have left their capital away down below the amount paid in by their stockholders.

Q. Are you not aware that in the Haverhill gas case that was the position taken by the Commission as embodying their policy?

A. They made a decision there which has never been sustained and is still in the courts. I don't recollect what the difference was. Haverhill shows at present 63 cents capitalization per thousand.

Mr. MATHEWSON: They are returning about 44 per cent on that.

The WITNESS: Yes.

Mr. BURR: I object to that statement.

Mr. MATHEWSON: It appears in the tables.

Mr. BURR: Then do not interrupt me in the course of my cross-examination, if it appears in the tables.

Q. I call your attention to the 16th annual report of the Board of Gas and Electric Light Commissioners of the Commonwealth of Massachusetts, from the year ending December 31, 1900, including tables from the annual returns for the year ending June 30, 1900. On page 9 of that document don't you find that the Board of Gas and Electric Light Commissioners states as follows:

6874 "The Haverhill Gas Light Company was organized under a special charter in February, 1853, and later, in that year began the supply of gas in Haverhill. Its capital stock was originally $45,000, which was increased in 1871 to $75,000 its present amount. It has enjoyed the exclusive privilege of supplying gas to the city and people of Haverhill, and with the exception of a period in its earliest history, has been uniformly prosperous. Its management appears to have been exceptionally careful and conservative, so that, in addition to the payment of an average dividend of about 8 per cent., it has accumulated a surplus invested in its plant estimated to represent from $275,000 to $300,000. * * * Accumulated, as it has been, out of profits in the performance of a public service, its existence affords exceptional facilities and imposes peculiar duties upon the corporation in its relation to the public.

As the company has applied this surplus to the cost of improving and enlarging its plant as has been needed to satisfy the public demand, the property in which it has been invested must otherwise have been represented by new capital contributed by the shareholders. Such use of surplus may properly be made of substantial benefit to the consumers and shareholders alike; to the former, by relieving them of some portion of the burden which the investment of fresh capital necessarily imposes, by affording the most ready facility for minor extensions of the company's lines, for superior excellence in its product and by aiding to the most satis-

6875 factory performance of its varied duties toward the public; to the latter, by strengthening the corporation in enhancing the security of the original investments of the shareholders, and in bringing to them a return somewhat higher than that to which they might otherwise be entitled. Such a surplus is by every principle of law the property of the corporation. It has an undoubted legal pro rata to its shareholders in case of liquidation; but, notwithstanding this, the circumstances attending its accumulation impose upon the company, so long as it continues to exercise the functions of a public monopoly, the duty to employ it for the joint advantage of the consumers and the corporation. It need not be dealt with as the exclusive property of either.

Fortunately, in the majority of companies of this class in this State, the recognition of this duty by the directors has been a part of the policy of their management; until recently this has been true also of the company in Haverhill. Now, however, its policy appears to have undergone a very decided change."

Is that correct?

A. I don't doubt it is correct.

Q. Is it not a fact that the Massachusetts Gas Commission has no authority to reduce the price except upon petition of the Mayor or a certain number of consumers?

A. I believe that is true.

Q. Don't you find from your examination of the record of that Commission that where such cases have been brought before them the Commission has reduced the price of gas even though the dividends were not over six per cent.?

A. They have done in some cases as explained by me yesterday.

6876 Q. It is not true also that in the case of new capital the Commission so fixed the price or the premium that not more than five or six per cent. could be realized by the investor?

A. Sometimes.

Q. Now, in the tabulations presented yesterday, you brought out the fact that certain Massachusetts companies quoted by you had a total capitalization both in stocks, bonds and notes of only $2.24 per thousand feet of annual sales. Now, on the basis of the sales of the Consolidated Gas Company last year of about thirteen billion cubic feet, this would amount to a capital of less than thirty million dollars, would it not?

A. I would be glad to compute it for you, acting as your computer, as Mr. Marks says.

Q. And making only a rude calculation, as he also stated?

A. No, I will make a very exact one. What was the figure?

Q. 2.24.

A. You have got a lower one. $2.18.

Mr. MATHEWSON: And the Haverhill, .63 cents.

The WITNESS: Yes, but I will take the 2.24 which Mr. Burr asks about. What was the amount, thirteen billion?

Q. I gave you the rough figures on the basis of the sale of thirteen billion.

A. It is thirteen billion, two hundred and eighty-three million and something.

Q. Well, if you want it exactly, yes.

A. I make it $29,753,920. I think probably they took the figures from Exhibit 378, the average for Cambridge, Fall River, Lowell and Worcester, given as $2.24.

Q. In most of those cities you referred to, you recognize, do you not, that they make all their own gas instead of buying part of it, as in the case of the Consolidated?

A. Most of them do, yes, sir.

6877 Q. And that the larger per cent. of that gas is coal gas?

A. I should not want to say without making a careful examination. There is a great deal of water gas made in Massachusetts.

Q. Assuming it to be coal gas, it would mean a more expensive plant, would it not?

A. Yes, sir.

Q. Don't you find the miles of mains are much greater per thousand feet of sales than in the case of the Consolidated Company?

A. I have not looked it up lately.

Q. And is it not your understanding and information that the Massachusetts gas companies you referred to are not working to the limit of the manufacturing capacity, to say nothing of exceeding it, as in the case of the Consolidated?

A. They no doubt have a margin to work on. It would not be safe otherwise.

Q. You referred to the figures you got from the statement of Mr. Grosser of Chicago?

A. Yes.

Q. Do you claim that those figures which you took from that statement present actual structural values?

A. No, I do not know what it represents. I just quoted it as a statement from the census, for what value it might have.

Q. Is it not likely to be more than the structural value?

A. On the average I am not sure; it probably is somewhat more.

Q. You quoted or referred to the statement of Mr. Bemis, as it appears upon page 3093 of the record. Did he not state there "If the companies can stand a reduction of any given amount," etc.? Does not that mean and did you not understand it to mean that if an agreed and reasonable profit on the basis of present sales can be secured by certain reductions in price, then the company can stand a farther reduction?

A. I understood it to mean that if the company could stand
6878 any kind of a reduction it could stand additional reduction down to the actual cost of the gas.

Q. That was your understanding of this statement?

A. Yes.

Q. And upon that understanding you based your statement?

A. Yes.

Q. Now, is it not a fact that although the increase of sales with reduction in price has not been large in London since 1901, you do not deny that reductions in price have led increase in consumption in most large cities, is that true?

A. There is a tendency, of course, in that direction. There is another question which goes there——

Q. With respect to a sinking fund in some Massachusetts municipal plants, you do not dispute the accuracy of Dr. Bemis' statement on the subject as he states, on page 3253, where he stands: The law states as among the expenses of operating a municipal plant this: "The requirements of the sinking fund or debt incurred for the plant." I interpret that to mean that in borrowing for the plant the town or city very likely has to agree to a sinking fund provision, or there may be a State law as to all municipal bonds. You do not dispute that, do you?

A. May I have the question to which that is an answer.

Q. (Handing book) You can read it.

A. Now, what is the question?

Q. I say you do not dispute the accuracy of his statement in regard to the subject of a sinking fund in some Massachusetts municipal plants as it appears at top of page 3253?

A. What you read me was on page 3252; I think Mr. Bemis was not entirely correct there. The provisions for a sinking fund are entirely separate from the point I understand was being referred to there, namely, the three per cent. for depreciation. That had
6879 nothing to do with depreciation, and I should say from the answer that Mr. Bemis was confusing those two points. Of course, there is no doubt in some of these cases there is a provision for a sinking fund in addition to depreciation. That is simply to get rid of the original investment after a stated number of years.

Q. Well, you say that the Consolidated Company should accumulate a reserve fund up to one-tenth of its assets?

A. Yes.

Q. Has it ever done so prior to this year?

A. No, no necessity for it. They have not had to meet a price reduction, a heavy reduction.

Q. Do you mean to say they never had to meet a price reduction before this one?

A. Any such reduction as this cutting down to eighty cents.

Q. So that the necessity you say did not exist before for the reserve fund?

A. No more than has been met by their methods of carrying on the business.

Q. Does that apply to a final renewal fund, also?

A. How do you mean, how does what apply?

Q. When you say that the necessity did not exist for the reserve fund prior to this reduction to 80 cents, I say does that apply also to the final renewal fund you spoke of yesterday?

A. They would not establish a final renewal fund, that would be unusual, they would put into plants amounts to cover renewals.

Q. And have they done that?

A. They have done it to a certain extent. In my opinion it might have been a little heavier.

Q. To what extent have they done it?

A. They have the difference between the amount charged to repairs and the amount charged to total repairs and renewals.

6880 Q. Do you recall what amount that was, or where it appears?

A. About four cents, I should think, that is the amount included in the 10.89.

Mr. MATHEWSON: It already appears in the exhibits.

Q. You compared the wages in London with wages in New York?

A. Yes.

Q. Upon what basis did you assume the wages in New York to be, what hours per day, and what wages did you use? If you have a tabulation of that, which I presume you have, I will take it and hand it to the stenographer. I would like to get the benefit of that.

A. Do you wish this, Mr. Mathewson?

Mr. MATHEWSON: If counsel wishes it, I have no objection to his putting it in.

Q. Where did you get your information as to the wages paid in England?

A. The one quoted, Gas Light and Coke Company?

Q. Yes.

A. From the company.

Q. And does that apply to any of the other companies?

A. Do you mean the Edinburgh works, the Granton?

Q. Yes.

A. That was not quoted yesterday, I made no reference to it in my direct-examination. That was obtained from data taken—I forget where it is now.

Q. Are you familiar with the method of operating gas plants in Glasgow and Dundee?

A. Not Dundee. I have been fairly familiar with Glasgow, I put up a plant for them some ten years ago.

Q. Do they pursue the same methods as adopted here by the Consolidated Gas Company of keeping their accounts.

A. I don't just know how they keep their accounts. They
6881 are not on our lists.

Mr. MATHEWSON: That is a municipal plant?

The WITNESS: That is a municipal plant, yes.

By Mr. BURR:

Q. You haven't got that on your list?

A. No.

Q. They are not one of the fifty clients to whom you send that confidential communication?

A. No. We have a number of municipal plants on our list.

Q. I refer you to the report of the Massachusetts Gas Commission for 1899-1900 and ask you if the following figures are correct for Haverhill before the Commission ordered the reduction from one dollar to eighty cents: Sales, page 123, 115,022,200 feet; profit——

A. You asked me the year before. I will have to trace this back to find out what—on page 123 the Haverhill sales are given as 115,022,200 feet.

Q. On page 72 of the appendix does not the profit appear as $23,060.60?

A. I don't find anything on the page you speak of as referring to Haverhill. I have got it on page 61, there is a reference to Haverhill, but that is not the correct amount.

Q. On page 62 it should be, instead of page 72; excuse me. Referring to page 62 of the appendix, do you not find the profit to be there stated as $23,060.60?

A. Yes. That is on the manufacturing account.

Q. On the same page do you not find the capital stock to be stated as $75,000?

A. $75,000.

Q. Bonds and notes, nothing?

A. Well, there is no notice of it.

6882 Q. Not given?

A. Unpaid bilis——

Q. Bonds and notes, no figure opposite?
A. No, I don't find any.
Q. Dividends, $22,500?
A. Now you are referring to the profit and loss statement, $22,500. Yes, the debits to that account.
Q. In your exhibit 390, do you not observe from that exhibit that in the seven cities there referred to that the profits, even omitting Charlestown, increase nearly as fast as the assets, so that the earnings were nearly as large a percentage of the assets after the reduction as before?
A. Well, I should have to calculate that out. It is not shown in the figures on the exhibit. I have figured Lynn and that stands about the same. The rate of profits on the assets remains about the same.
Q. You observe also this was in face of a reduction in price of 9 cents in one company and from 28 to 36 cents in the other companies, omitting Charlesto-n for the reasons you gave for so omitting?
A. Yes. Well, the reductions are shown right on that sheet. I added them afterwards to the amount. I think I added them afterwards to the amount. In Lynn it was $1.22 to .90; in Worcester, $1.09 to $1; in Springfield, $1.37 to $1.01 and etc.
Q. As a matter of fact does not your exhibit 390 show, omitting Charlestown, that with an average of over twenty cents in price the sales in fact increased from 988,739,000 feet at the first date given by you for each company to 1,785,603,000 feet at the last date given by you, an increase of 80 per cent.?
A. I have not shown that here at all. I should have to make up a total to see whether that was so.
Q. I won't ask you to stop to compute it now. It is a matter of computation.

—. ——.

6883 Q. Does not exhibit 390 show that the assets only increase 37.7%, or from $4,312,786.11 to $5,937,706.69, in order to take care of this 80% that I understand you would have to compute?
A. Certainly.
Q. But assuming those statements to be correct that would confirm Professor Bemis' claim that an increase of consumption following the reduction in price does not involve a proportionate increase of capital?
A. I think the facts are shown right in my table. There is given the increase of profit and there the increase of assets, and there are the ratios given.
Q. But if that exhibit shows what I have asked you in the two preceding cases then that would bear out Professor Bemis, would it not?
A. I should have to study his whole deduction very carefully. You mean those two answers?
Q. You cannot say?
A. No, I cannot say without computing. It seems to me that the whole case is covered in my table there, boiled right down.

Q. Now in any given city does doubling of the amount of gas passing through a street main increase its depreciation or need of repairs?

A. The actual passing of the gas through does not injure the pipe at all, but if you have more gas passing through you probably have more consumers and you probably have more services to take care of and the like. It adds to some of the charges in that way.

Q. Does it add to the charges on mains?

A. Yes, it would add to the charges on mains somewhat because the more you dug down to connect services and the like the more you would have to look out for your main. It would not be important in that direction.

6884 Q. The cost of repairs and depreciation does not increase proportionately to the increase in volume of gas passing through the main, does it?

A. Not necessarily, no.

Q. Does it usually?

A. The cost of repair as a whole?

Q. In any way that you want to assume, on mains?

A. I mean on mains. As a whole?

Q. Yes.

A. No, it would not be in proportion. As I stated there would be an increase with the extension of business; some increase.

Q. Compare two mains, one capable of carrying ten times the amount of gas of another. Will the large main require ten times the repair of the smaller?

A. Certainly not.

Q. I call your attention to volume 2, page 211, of the Holyoke Gas Investigation, and ask you does it not appear there that the gas sold June 1st, 1897-98 was 59,875,900 feet?

A. Yes.

Q. And the unaccounted for gas 12.2%?

A. Yes.

Q. On page 15 do you notice that the number of meters in use was 2,457?

A. It does not seem to be very clearly stated as to whether in this one case the meters on hand are shown below.

Q. Will you give the two items that appear with regard to meters?

A. Unless there is some general total that shows it. I don't know. It shows meters, 2,457 meters. It then gives some meters down below as on hand; 110 of them.

Q. On page 16 the mains are given, are they not, Doctor?

A. Yes.

Q. Assuming that the mains there as given show 168,687 feet or 31.93 miles—or may be you can find by a short computation that there is correct?

A. That adds up correctly; 168,587.

Q. Well, we won't bother with it any more. That would
6885 be 31.93 miles, would it not?

A. Yes; about that, I should think.

Q. You spoke of the oil used in Philadelphia and elsewhere as mostly 28 degree gravity oil. Is it not mostly Texas oil?

A. I don't think I said I was quite as definite as that. I said I imagined it was. I have no very exact information as to the exact gravity of the oil. As to its being Texas, I have no doubt some of it is Texas oil. As to the proportions, I don't know.

Q. I understood you to say yesterday that by this proposed lease or ordinance to which reference was made, that the proposition of the company in Philadelphia contemplated a reduction for a number of years. I did not quite understand whether you referred to 75 years or 30 years yesterday. What was the correct number of years you had in mind at that time?

A. The year 1927 was the last. After that my recollection is that the proposition contemplated the price staying there.

Q. They were to make the price of gas on December 31, 1907, 90 cents; 1912, 85 cents; 1917, 80 cents; 1927, 75 cents?

A. That was the net to the company, yes. They could juggle it around as they pleased with regard to the city and the consumers.

Q. And this I understand from you was an offer which they made to the Councils in Philadelphia, agreeing to pay $25,000,000 for that, having a capitalization of sixteen millions themselves, and which you figured out would bring them at the end of that period an income over and above about $8,000,000, is that right?

Mr. MATHEWSON: A sinking fund?

Mr. BURR: A sinking fund.

6886 A. These prices I named to you were the prices of the ordinance, not in connection whatever with regard to the amount of capitalization. I was simply taking Mr. Marks' statement as to that and simply rebutting his statement that it must be a very profitable contract if they were able to pay off any such vast sum of money. I didn't say it would be the actual expenditure, although I did mention if there were such extra expenditures the sinking fund arrangement that I developed on Mr. Marks' statement would leave a margin of some seven million or eight million after paying off those forty-one millions.

Q. As I understood, an offer was made by the U. G. I. to the Council in Philadelphia whereby they offered to enter into a lease with the city authorities and pay $25,000,000 for that lease; is not that true?

A. Oh, it is approximately correct.

Q. And that lease or contract or agreement contemplated the reduction which you have stated?

A. No. You are confounding the two propositions. The ordinance which is now controlling the situation covers these reductions, and the revised proposition, as I recollect, was to commence future payments by the payment of $25,000,000.

Q. They wanted an extension of the present arrangement by which they were willing to pay $25,000,000?

A. Yes, in lieu of the other payments they would have to make otherwise, and commute it; pay it in advance.

Q. That was rejected?

A. Yes.

Q. And caused a great public upheaval, to your knowledge, in the City of Philadelphia?

A. Made quite a fuss.

Q. Do you know where the oil comes from that is used in Philadelphia?

A. No, I do not.

Q. Nor do you know where the oil comes from that is supplied to the Consolidated?

A. No.

6887 Q. Can you state what gas companies in the forty odd cities of the United States of over 100,000 population set aside a reserve or contingent fund such as the Consolidated has introduced into its books since the Boston gas hearing two years ago?

A. Can I tell you how many do it?

Q. Yes.

A. No, I don't think that many of them do it in that form. They cover it by construction.

Q. Do you know any five cities that do it?

A. No.

Q. Do you know any two that do it?

A. I might amend that answer. I don't know of any companies that do it just in this way, but quite a large number of companies are covered by a very definite system providing for depreciation, by the United Gas Improvement Company, they cover it in their general account, not for each individual company.

Q. How many cities over 100,000?

A. In that group?

Q. Yes.

A. Well, let us see. There is Philadelphia; Jersey City, I suppose it well up above 100,000; Kansas City, Omaha. I don't recollect. I cannot for the moment just recollect the number of instances and I would have to take out Jersey City because that is not now under the direct control of the U. G. I., and I don't know what the direct methods would be; simply interested in it through the public service corporation.

Q. Outside of the three controlled by the U. G. I., do you know of any other company?

A. I don't think of any at the moment.

Q. In Exhibit 380 you gave sales, Fall River, for year ending June 30, 1906, as 371,796,000 feet, did you not?

A. No.

Q. It is probably Exhibit 390 then, Doctor.

Mr. MATHEWSON: 321,119,000.

6888 Q. On page 17 of your copy of the return of that company, the water gas made is stated as 396,903,400, is it not, as the same appears upon page 17 of the return?

Mr. MATHEWSON: For what year?

Mr. BURR: I will ask that.

A. Yes.

Q. What is the year for which that return is made?
A. That was for the year ending June 30, 1906.
Q. Is the candle power given on page 119 as 20.8?
A. Yes, determined by the State inspector.
Q. Now in your copy of the report for Lowell, page 22, for 1905-6, is not the unaccounted-for oil there stated to be 29,613.88 gallons?

Mr. MATHEWSON: I do not know how this is cross-examination of anything that this witness testified to.
Mr. BURR: So that there may be no mistake as to the figures, while the witness is on the stand.
The WITNESS: I have not used any of these figures except sales, and these are makes. I have not used any of these figures.
Mr. BURR: All these matters are matters of computation and correlation of figures and different facts, and I want to call the witness' especial attention to these figures for the purpose of deductions we propose to make if we can.
Mr. MATHEWSON: I know, but there is nothing in these tables relating to that.
The MASTER: That is hardly the function of this cross-examination, is it, Mr. Burr?

6889 A. I am not conscious I touched on this, nor am I conscious I ever looked a- these figures before, and I would have to look at them, especially because of all this ringing which was done by the commissioners, and we simply copied it and I shall have to study it out and see just what is meant.

Mr. MATHEWSON: What does that rebut, Mr. Burr, that we put in yesterday.
Mr. BURR: I will leave that to the brief.
Mr. MATHEWSON: I am afraid you will have to. That is a prudent answer.
(The witness now proceeds to figure).
Mr. MATHEWSON: I think it is only fair, in view of the fact that the witness has not examined these figures, to call his attention——
Mr. BURR: If the Doctor finds any difficulty about that I will withdraw the question.
The WITNESS: I will have it in a minute. There are evidently a lot of adjustments that have been made here.
Mr. MATHEWSON: Naphtha as well as gas oil was used.
Mr. BURR: The witness is quite competent to understand the question.
Mr. MATHEWSON: Yes, he understands the question all right, no doubt.
The WITNESS: Now, what is the question.
The STENOGRAPHER (reading): Now in your copy of the report for Lowell, page 22, for 1905-6, is not the unaccounted-for oil there stated to be 29,613.88 gallons?

A. On the line "other oils" I have calculated that out and cannot make it agree with the report at all, and this is all ringed in with certain marks that I don't believe refers to any unaccounted-for oil;

it does not check at all with the figures. I do not believe
6890 that it is, from my investigation.

Q. On page 17 of the Lynn return for 1905-6, the water gas made is given as 206,197,000 feet and the coal gas 230,842,400 feet, is it not?

A. It is given with some marks crossing it out, and I don't recollect just what those marks indicated, whether it was a readjustment by the commissioners or not.

Q. And the coal gas?

A. The coal gas is shown at 230,842,400 feet and the water gas at 206,197,000, and then both have lines crossing them out.

Q. What is the total?

A. 437,039,400.

Q. You referred yesterday to Professor Bemis' statement with regard to the testimony given by Mr. Cowdry in Chicago, and you thought that he had misquoted Mr. Cowdry. I want to refer you to the testimony taken at that investigation; it may refresh your recollection?

A. My impression is that my testimony was more to the fact that he had partially quoted them.

Q. Do you not find on page 41 of the record entitled "Transcript of Proceedings at the Meeting of the Committee on Gas, Oil, Electric Light of the City Council of the City of Chicago held on December 28, 1905; Present; Aldermen Young, chairman; Marks, Smith, Potter, Ryansburg, O'Connell, Sitz, Monohan, Badnock, Raemer," that Mr. Cowdery states on that page (41) referring to repairs of manufacturing plant that the "ordinary repairs in a water gas works would be about two and one-half cents, on an average, whereas coal gas works would be nearer five cents."

A. Page 41?

Q. Yes.

A. I quoted from this little book. I read that in this paper which purports to be a transcript of the proceedings.

6891 Q. Now, refer to page 64 and do you not find he there stated "the repairs to mains and services will take in the average company, an average large company, any way about three cents a thousand."

A. I read from this document handed me, what Mr. Cowdery said: "I don't know that I care to and I don't believe I am called upon particularly to go into all these details, but I have no hesitation in answering that the repairs of mains and services will take in the average company—average large company, about three cents a thousand."

Q. Referring to the pamphlet which you just a moment ago had in your hand, which is the pamphlet that has been referred to many times during the progress of this trial, do you not find on pages 45, 46, 47, 48 and 49 of that pamphlet a letter from you to the Chairman of the Gas Committee of the City Counsel of Chicago, dated January 12, 1906, in which on page 47 you reached by various methods of computation 94.98 cents as a fair basis in Chicago on the manufacture and distribution per thousand cubic feet of gas, and in

closing you state, do you not, "finally from the facts given to me in the hearing and now briefly recapitulated I do not hesitate to say that the offer of the Chicago Gas Company to sell gas at a value of 90 cents per thousand is a fair one and should be accepted by the City."

A. Quite correct.

Q. Isn't it a matter to your knowledge within a few days afterward that that company voluntarily reduced its price to 85 cents?

A. Sometime after. I don't recollect how long. I should imagine it was a month or two; not a few days after. It doesn't change my opinion though.

Q. Are you aware that the company has just raised their
6892 quarterly dividend to 1½%, to the usual dividend when the price was one dollar?

A. No, I am not aware of that. I have seen in the papers they paid one dividend of that amount. I have no means of knowing that that is to be their rate.

Q. Now, referring to the testimony of Dr. Marks, you have used the chart prepared by him regarding mains and the cost of laying, which is City's Exhibit 50, in making computations of amounts for Cambridge, Fall River, Springfield, Worcester and Lowell, have you not?

A. Yes.

Q. This chart purports to give the cost per ton of 2,000 pounds in New York, does it not?

A. Yes.

Q. And did you observe this at the foot of it, reading "figures include 10% undistributed expense and 15% contractors' profits"?

A. It is some time since I made this table.

Mr. MATHEWSON: The rates are printed in the record in the form of a table and you may have that instead of the chart?

The WITNESS: I think I had the record and for a moment I cannot recollect whether that was supposed to include those items or not, but I think it was. I am not sure of that. I should expect to include some such items. Certainly the ten per cent.

Q. Well, you know that this chart was prepared, do you not, to show the prices of laying mains under the peculiar situations that exist in the streets of the City of New York?

A. No, I did not understand it was prepared with the idea of covering various conditions.

Q. Even the "cheap" cities you referred to yesterday.

A. As far as the pavement is concerned, yes.

6893 Q. Doesn't it equally appear "cost per ton of 2,000 pounds in New York"?

A. It is.

Q. You accepted this of course as a basis for the computation of the laying of mains in these other cities?

A. I accepted Mr. Marks in this computation as I accepted his figures in other cases, in rebutting his own testimony.

Q. In your figures you include the 15% though for contractor's profits in your prices?

A. I think I did, yes. I should have to look that up again with my original figures. I think that was prepared some months ago.

Q. Have you noticed the "cost for excavating and filling, city proper, $2.50 per cubic yard," on the excavating line of the diagram, and the $5 per cubic yard for rock excavation?

A. No, I have not particularly noticed. As I say, I think I took my figures from the schedule which stated as to simply laying under the uniform macadam conditions.

Q. This chart was prepared for the purpose of attracting the eye to the similar schedule that was prepared, so that you might readily understand what you mean to show. That is the object of the chart, you understood that, didn't you?

A. It might be the object, I don't see much readily by the chart.

Q. Have you not as a matter of fact allowed a New York contractor's profit of $2.50 per cubic yard for excavations for these Massachusetts towns with which you have instituted comparison?

A. I took Mr. Marks' figures and stated so distinctly. The simple conditions that he stated, and took one of Mr. Marks' low costs.

Q. Then you did not understand that a user of this chart is expected, except for the City of New York, to make proper modifications of different places and that on the chart will be found
6894 every means for so doing?

A. No, I did not understand that.

Q. Is it not a fact that Metropolitan conditions of pipe laying do not obtain in the Massachusetts towns of 100,000 inhabitants, or are the conditions the same as they are in New York?

A. Certainly not.

Q. The conditions of laying mains and the cost of laying mains is the same in these small towns as they are in New York?

A. Certainly not; they are not the same.

Q. So therefore if you base the cost, if he has given here in this chart and in his schedule the cost which according to him would be necessary to be paid for laying mains in the streets of the City of New York and you have used the same figures for the laying of mains in these cities the deduction would be erroneous—there would be some error in it?

A. Yes.

Q. And therefore it would follow that your cost of mains is extravagant—there would be some error in it?

A. Yes.

Q. And therefore it would follow that your cost of mains is extravagant according to Exhibits 384 to 389, since you have not rightly used the data on City's Exhibit 50?

A. I have not acknowledged I have not rightly used it, until I look it up again, and I object to "extravagant." I don't say it would make an extravagant difference on the particular figures I took from Mr. Marks. My recollection is I studied them out at the time and made up my mind that they excluded most of the special conditions.

Q. Have you knowledge of the method by which the Massachusetts companies charge off capital expenditures?

A. The method?

6895 Q. Yes.

A. You mean by that, they have some uniform method and do I know it?

Q. Or do you know the method or methods adopted by them?

A. There is no special method adopted by them so far as I know of. They have their own ways of doing it and there is nothing specified as far as I know by the Commission. They charge up several amounts to depreciation in cases of amounts that already appear in the so-called gas manufacturing account and make special charges of that kind which tend to increase the usual accounts.

Q. Are you willing to swear that the actual cost of main increases has not been entered upon the books of all these companies and depreciation for obsolescence and inadequacy written off?

A. I am inclined to think the charges are all made against the proper account. I cannot imagine they are doing otherwise, and that they have been reduced by credit against those accounts. That would be the conclusion from the study of the figures.

Q. You understand that Dr. Marks divided his working capital roughly into raised capital, stockholders, 13 cents per thousand, borrowed capital on notes 35, total 48 cents per thousand?

Mr. MATHEWSON: You mean for the seven or four Massachusetts companies?

Mr. BURR: For the Massachusetts companies.

A. I know he makes a distinction between the amounts that he says are borrowed from the stockholders and the amount raised by notes. Of course, the distinction is not a correct one.

Q. Are not notes payable regarded generally and everywhere in the United States as floating debts?

A. There is a very great deal of very loose nomenclature

6896 used in America in regard to such matters. In the Massachusetts gas companies it does not mean anything of the kind, and the Gas Commissioners themselves regard that title as fixed capital temporarily as a rule in the form of notes payable, afterwards to be taken up by the substitutions therefore and stock sold to stockholders or other forms of securities.

Q. You would not say that the mere fact that the Massachusetts Comm-ssion treats notes payable as bonds makes them bonds or fixed capital, would you?

A. The mere fact that the Massachusetts Commission considered it fixed capital is sufficient for me for my purposes. I do not care whether you call it notes payable, accounts payable, or anything you please, the fact is it is money borrowed and invested in the plant, and so considered and considered by those who have charge of the accounts, and those who control the gas companies, the Commissioners, and they treated it so, and I have a statement to that effect from the chairman of the Commission, if you wish it. In fact it appears in that letter handed in -his morning that that is the way of treating the subject.

Q. Do you know as a matter of fact, Dr. Humphreys, the cash cost of gas in Philadelphia?

A. No.

Q. Referring to that exhibit 384, you gave the company's assets, structural assets of works, as follows: From report June 30th, 1906, to the Massachusetts Commissioners; Cambridge, 1,698,040, is that correct?

A. Yes.

Q. Fall River, 1,038,162?

A. Yes.

Q. Lowell, 1,554,464?

A. Yes.

Q. Worcester, 1,338,305?

A. Yes.

Q. Total, 5,628,971?

A. I don't know about totaling it. It was not totaled by me.

6897 Q. Kindly total it and see what the total is?

A. You selected for comparison Fall River, Worcester and Lowell, was it?

Q. Yes.

A. 5,628,971.

Q. Now, from the reports you have produced here will you check their daily capacity for me?

A. Daily capacity?

Q. Yes, Cambridge, or whatever it is—the first one you have there.

Mr. MATHEWSON: The daily capacities were all gone over previously, and it appears in the record for daily capacity; at least what was stated in the report of daily capacities by Professor Bemis, or Dr. Marks. I do not see the necessity of doing it again.

Mr. BURR: This is 1906 that Dr. Humphreys has brought in.

Q. From their reports will you check their daily capacity? Cambridge 4,000,000 capacity, is it not?

A. I do not know, sir, I will have to look it up.

Q. Look at page 17.

A. Cambridge is stated on page 17 to be 4,000,000—1,000,000 coal gas and 3,000,000 water gas.

Q. Fall River 2,500,000, same page?

A. Fall River is stated to be 2,500,000.

Q. Look at page 17, Lowell report, and see if you do not find the daily capacity stated there, 4,400,000?

A. 4,400,000.

Q. Look on the same page 17, at the report on Worcester, and see if you do not find the daily capacity stated there to be 4,200,000?

A. 4,200,000; would you like to have it added?

Q. Yes, kindly do so and see if the total is not 15,100,000.

A. It is 15,100,000, as near as I can make it.

Q. The annual 200 times daily capacity is 3,020,000,000.

6898 A. Multiplying 15,100,000 by 200, as your computer, I find it to be 3,020,000,000.

Q. On the basis of those reports made will not this give $1.86

per annual thousand capacity, provided that those works are operated as is the Consolidated Gas Company with a capacity factor of 200 to 204?

Mr. MATHEWSON: Is not that what Dr. Marks testified, that those figures brought out 1.86? It is the same thing and that is what we are rebutting, among other things. It does not prove anything to go back and say that the original figures were different, on a different basis, representing a different thing.

A. That calculation gives it as you say, $1.86.

Q. Of course, "adjusted book assets," in that item you exclude notes payable from your floating debt?

A. Certainly.

Q. And therefore on that item you and he do not agree? I understand that to be the situation.

A. He does not agree with me in that, and he does not agree with the commissioners in that.

Q. Assuming that to be so, does not this result which you find of $1.86 agree within reasonable practical limits with the $1.78 per annual thousand of capacity, deduced by Dr. Marks, for those four same companies for the fiscal year of 1905, as he has testified?

A. I should be as willing to take one figure as another in my calculations that I had to make.

Q. Is not the capacity factor at which the works of the Consolidated Gas Company were operated in 1905, about 204, or a little greater than the 200 which Mr. Marks has assumed?

A. I do not recall exactly, it is about that.

Q. I will ask you this; don't you consider the New York
6899 field here in this metropolis of much denser and vastly larger capacity in its demands for gas, than these Massachusetts towns?

A. Yes.

Q. You said that where under the British Law gas companies invited parliamentary investigation, in that event it would be a question for the Board of Trade to say whether that charge should be made against consumers of gas, or fixed in some other manner.

A. I did not say anything of the sort.

Q. Will you kindly tell me what you did say?

A. In that case there is a question, although it is usually charged in the same way as the rest, and certain questions are carried to the Board of Trade in that regard, and they generally follow the advice of their chief auditor or something of that kind.

Q. The language you have used is this:

"Where a company has involved itself in parliamentary investigation, then it is left to the Board of Trade."

Is that true?

A. That may be the way I stated it, but I stated it more correctly now, and fuller than I did then. It is not absolutely referred to the Board of Trade, unless the question comes up. It comes up, as I recall, through the auditor, the Board of Trade's auditor—having an opportunity to go through the account and object to such items,

and in such case, as I recall it, it has to be considered by the Board of Trade if the amount is rejected.

Q. Therefore, I understand that under the British procedure, if a company fought against the law fixing the regulations and prices for it, the question would have to be solved by the Board of Trade.

A. No, sir; not at all. You entirely misunderstood me.

6900 In all such cases as that—the ones I referred to, are where they are attacked; in the cases where they have to defend themselves, that is not the question at all; it goes right into the operating expenses, the same as coal itself.

Q. You have stated a number of companies that you act for in an advisory capacity, and you have particular connection with a certain number of companies that you have stated this morning. In addition to that you issue to those fifty clients that you have a confidential communication, so to speak.

A. That is right, sir.

Q. In which you advise them as to the cost of gas as to how to produce the best results; is that right?

A. Yes.

Q. That is, you advise the gas companies how to get the most money out of their working plants?

A. No, only in regard to water gas works, as I stated. I think we advise them as to the plants that we have put in for them and in that connection are given an opportunity to analyze their accounts and make adjustments between coal gas and water gas companies and ourselves, properly, so as to get the cost of the water gas on a comparable basis for the several companies. That is a confidential communication. There is a copy of it, I think that is the last issue. That is sent to every one of these companies or corporations, and I think that number is about fifty.

Q. Your business is, as I understand it, in issuing that confidential communication to advise them how to put money in their pockets?

A. Certainly.

Q. And to produce the best results?

A. Certainly.

6901 Mr. MATHEWSON: You would not have much sale for one advising them how to lose money, would you?

Mr. BURR: The Greek chorus will please subside while I am cross-examining.

A. I would like to add to that, if you would like to have me do it——

Q. (Interrupting.) No. You testified as to your connection with the U. G. I. Company and you have testified relative to Mr. Bemis' testimony on the differences in candle power between Mr. Walton Clark's home, and the Philadelphia Gas Works, which you said Mr. Clark absolutely denied?

A. Absolutely, in the most positive terms.

Q. Many more miles away. Do you know, or have you read of the paper before the American Gas Institute, October 19, 1906, by W. H. Gartley, engineer of works of the Philadelphia Gas Works?

A. In a general way.

Q. It is printed in the "Progressive Age," for December, 1906, on page 755, giving the experience of that company, he shows at the bottom of the page in a curve the loss of candle power between the works and the City testing stations, does he not?

A. My recollection is that he did do something of that kind.

Q. Do you find there at the bottom of page 755 those curves of loss in candle power by reduction in temperature, and if so, will you look especially at curve C, Philadelphia holder, and distributing mains, at testing stations.

A. Yes.

Q. Now, this curve shows, does it not, that starting with 70 degrees temperature at the works or holder, a drop to 60 degrees reduces the candle power to about 2½ per cent.

A. Give me a little time to look at the paper. It is a very
6902 complicated one and very hard to understand. I do not think it is per cents.

Q. Look at the bottom of that diagram and see if you do not find the words "per cent. of candle power loss"?

A. Yes, that is right. This table shows the curve C, a loss of about 15 per cent. at 35 degrees.

Q. A drop to 60 degrees reduces the candle power about 2½ per cent., does it not?

A. Yes.

Q. And a drop to 50 degrees reduces it about 5½ per cent.?

A. About 5 per cent, I think.

Q. A drop to 45 degrees reduces it about 8 per cent.?

A. 8 per cent. is right.

Q. A drop of 40 degrees reduces it about 8 per cent.?

A. 8 per cent. is right.

Q. A drop to 35 degrees reduces it about 15 per cent.?

A. Yes.

Q. All those droppings, so to speak, of percentages, are shown in the tables I have referred to?

A. Yes, shown in the curve.

Q. I call your attention to Mr. Gartley's further statement, which appears on page 746, as follows:

"We are required to maintain 22 candle power at the testing station. Allowing ½ to ¾ candle power extra for any further reduction in dew-point between the testing station and the consumer, we are convinced by hydrometer and photometer observations in other parts of the city, that we have delivered 22 candle power to the remotest points. With this method in use we find that no importance need be attached to the loss of candle power from friction in the mains and other vague causes.

A. Yes.

6903 Q. Do you agree with that statement, or have you any reason to disbelieve it?

A. No, I do not agree with Mr. Gartley as to the effect of friction in mains.

Q. You have no reason to disbelieve it as to the effect in candle power?

A. No, I imagine he is correct; no doubt he thought he was correct when he wrote that.

Q. I will also call your attention to his statement appearing at page 757:

"I have intended in this paper to lay down the general principles of a method for securing not only uniform candle power to the same consumer from hour to hour, but a method that will give gas varying only slightly in candle power over the entire distribution system. In order to show the uniform candle power delivered to the consumer by the application of this method in Philadelphia, I give the average daily candle power during a period of low dew-points, that is from March 16 to April 1. Each day shows the average of the twenty-four hourly observations by the candle power readers at the testing stations. The candle power desired to be carried was 22.75."

Then follows the candle power in three columns, showing the candle power on the days stated in the column, under columns headed A and under the one headed B. Is not that true?

A. Yes.

Mr. BURR: I ask to have these columns read as if they were put to the witness and answered.

6904 The columns referred to are as follows:

March	16	22.69	22.96
"	17	22.52	22.63
"	18	22.44	22.56
"	19	22.54	22.83
"	20	22.90	22.86
"	21	22.67	22.73
"	22	22.74	22.71
"	23	22.60	22.43
"	24	22.78	22.49
"	25	23.04	22.79
"	26	22.75	22.76
"	27	22.82	22.63
"	28	22.52	22.35
"	29	22.88	22.35
"	30	22.92	22.48
"	31	22.66	22.44

The WITNESS: Yes.

Q. On page 755 you find a statement made at the head of the chart A, B, and C, from mixed gas, six parts water gas, Texas oil distillate, to one part coal gas; is that so?

A. This is from a mixture of six parts water gas, and one part coal gas?

Q. Yes.

A. Yes, I find that there.

Q. Do you agree with those views expressed by Mr. Gartley?

Mr. MATHEWSON: We do not know what they are.

Q. Have you any doubt as to the accuracy of his statements as he has given them here?

A. I would not express any opinion on that paper without very careful study. I endeavored to give it that study, and did not find time. It is a new proposition which Mr. Gartley has brought forth, and which I presume many engineers would disagree with him about. Still, I have the highest respect for Mr. Gartley, and
6905 I would hesitate a long time before I doubted anything that he stated. Undoubtedly he believes every word he has stated.

Mr. BURR: I want to admit that Mr. Bemis was mistaken, when he used the difference in candle power referred to in works; he referred to the testing stations.

The MASTER: It was on that point that this cross-examination has been going on.

Mr. BURR: That is all I have to ask.

The WITNESS: Of course, I could not say as to that, I did not ask the question that way.

Cross-examination by Mr. KIRBY (Continued):

Q. Of course, when you were at the U. G. I., you were familiar with the letter head of that company?

A. Yes.

Q. I show you a letter addressed to H. H. Edgerton, dated Philadelphia, February 16, 1888, and I ask you if that is upon the letter head of the U. G. I. Company?

A. That is right; I remember it very well.

Q. Do I read this letter head correctly:

UNITED GAS IMPROVEMENT COMPANY,
Office 333 Walnut Street.
Philadelphia.

George Filler, President.
W. W. Gibbs, Vice-President.
A. O. Granger, General Manager.
H. H. Edgerton, Chemist and Engineer.
Samuel T. Bodine, Secretary and Treasurer.
Edward C. Lee, Asst. Secretary and Treasurer.
Alex. C. Humphreys, General Superintendent.
6906 Joseph H. Collins, Jr., Asst. General Superintendent."

That is correct, isn't it?

A. Yes, that is correct; that was the form for quite a time.

Mr. MATHEWSON: This appears to be a letter addressed by Joseph Collins, Jr., Assistant General Superintendent, to Mr. Edgerton, does it not?

Mr. KIRBY: It does.

Mr. MATHEWSON: Of course we can introduce things from the officers.

Mr. KIRBY: I am not introducing the letter. I do not consider that I have any right so to do, or I certainly would have offered it. My inquiry is directed as to the officers of the company which we were speaking of yesterday.

Q. Referring you not to Complainant's Exhibit for identification

No. 377, and especially in reference to the method of testing candle power in use at Danbury, I call your attention to a clause at the bottom of the page headed: "Results from the use of Danbury process of upright retorts," and I ask you if I read the same correctly.

"The candle power is determined by the use of a burner giving a fourteen candle flame; standardized by a burner giving a 22 to 25 candle flame, the rating of the gas would be raised to about 44 candles; or 8.8 candles per cubic foot instead of 7.5 candles?"

A. Yes, that seems to be read correctly.

Q. Now, I read to you a statement which happens to appear in a book entitled: "Gas works, their construction and arrangement, &c., by Samuel Hughes, C. E.," on page 341 thereof:

6907 "Argands are generally made to consume five feet of gas per hour, and they only give the full amount of light the gas is capable of evolving, when burning the maximum quantity for which each burner is made. Moreover the light diminishes materially in proportion as the quantity of gas is reduced; as shown in the following table of the light evolved from an argand under different consumption of gas."

Then follows the table referred to, and it goes on:

"It follows, therefore, that in order to obtain the maximum amount of light from argand burners, the full quantity for which they are made should be consumed by them; and whenever it may be desirable to introduce economy, it is better to have a limited number of burners of the larger dimensions, some of which may be extinguished when desired, rather than have a number which are checked to only a portion of their full consumption."

I read that correctly, do I not?

A. Yes.

I read further:

"The light from a given quantity of gas when consumed in the batwing or fishtail does not vary in the same degree when the flame is reduced, as the argand. Thus, if we suppose either of these burners to yield the light of ten candles when consuming five feet per hour, on reducing the supply of gas to 2½ feet the light of 2.5 candles will be evolved."

I read that correctly, do I not?

A. Yes.

Q. Do you agree with that proposition as laid down there?

A. The whole thing?

6908 Q. The latter part which I read?

A. Oh, no, not as a general proposition, at all; there are a very great many loose statements made in these text books, as if there were some general law that applied to all qualities of gas, which is not so at all. If you are going to establish a law of that kind you will have to establish it for each particular quality of gas, to commence with.

Q. As a general proposition, taking the same gas, we will assume that we are using a batwing or fishtail, as called for in the last paragraph of the statement:

"Thus, if we suppose either of these burners to yield the light of ten candles when consuming five feet per hour, on reducing the supply of gas to 2½ feet the light of 2.5 candles will be evolved.

That is correct, is it not, that while it may not be a reduction of as much as 2.5 candles, or may be more, it does not follow in a batwing or fishtail burner in the same proportion as it does in an argand?

A. Probably not, but as I say, these cases have to be considered in connection wi-h the gas you are manipulating and burning and testing. You cannot set down any law as to what the increase of light will be due to change of burners.

Q. Therefore one would have to be familiar with any particular gas to know how the candle power would be affected by using different size burners?

A. Certainly; you would have to experiment with the gas. There is no general law.

Q. And that, of course, would be true of Danbury gas the same as any other gas?

A. Of course.

Q. I call your attention further to a part of complainant's
6909 exhibit 377 for identification, being the part of the statement headed "The Danbury process of gas making" and under the subheadings "Photometric Methods used at Danbury."

"Photometric Methods used at Danbury, in reporting candle power. This is an important point, because it is a well known fact that poor gases can be rated a- higher and rich gases at a lower value, than is practically obtained by the consumer, even with the best and most suitable burners in each case. The whole matter rests on the fact that the same gas can obtain different ratings per five cubic feet, according to the greater or less candle power of the flame used to obtain the rating; for instance, if a three-foot rate of consumption is obtained and tested with a suitable flat-flame, and a five-foot rating of the gas given thereby, it will give a decidedly inferior rating to the gas than if burned in a suitable burner at the rate of five-feet. For the above reasons it was determined to standardize the Danbury gas by a standard candle power flame, and the power of the flame was put at fourteen candles, because at that time, 1879, it was the actual five-foot rating of the gas in use (coal gas). The Danbury gas can be actually burned, and is so used by many customers, in flames of thirty to thirty-three candles. There was no obligation to standardize by so small a flame as fourteen candles, save the facility it gave for comparison with the former gas, coal gas. Standardized with a twenty to twenty-five candle flame the pro rata candle power of Danbury gas is raised from fourteen candles for two c. f. rate to 17.6 candles for a two
6910 c. f. rate; and this is the actual comparative value of the gas and——"

And here follows a line which has been chopped off and we have only the top of some of the letters. But I think that reads:

"When compared with"—then we cannot read that—"ordinary methods."

A. Yes, I got that much, but I could not get anything out of the centre of it.

Q. That is a correct quotation from this exhibit, is it not?

A. Yes, sir, I think it is.

Q. Now, referring to the same exhibit for identification, and with especial reference to the oil proposition in that, the first page, I read:

"DANBURY, CONN.
November 22nd, 1905.

W. H. Bradley, Esqr., Chief Eng'r Consolidated Gas Co.
MY DEAR SIR:

The apparently simple questions left for me to answer by Mr. Wood——"

Q. Mr. Wood being in this instance, I take it, one of the engineers of the Consolidated Gas Company and should have been Woods, I think?

A. Yes, I think so.

Q. I will continue:

"relative to the results of making oil gas in vertical retorts according to my plans, has led me into a perfect wilderness of figures and retorts, extending over a period of fifteen years. If Mr. Wood had struck in here about a week after starting; that is to say, about the middle of April, 1890, I could have told him all about it right away without any ifs, ands or buts; *but* when it comes to running
6911 one machine for fifteen years, there's lots of things turn up. There's shortage of naphtha and oil to account for; there's cutting up of gas meters, big ones and little ones; there's leakage of gas to charge up against the machine; the ups and downs of the thermometer, the hoppings of the barometer, the height above the sea——"

The MASTER: Mr. Kirby, this exhibit for identification is all going to be printed, it does not seem necessary to me to spread it on the record again.

Mr. KIRBY: Dr. Humphreys stated yesterday that I asked him in regard to candle power and he did not remember the method used at Danbury, and I want to call his attention to a particular point. I am coming to it right here,

"and the depths of human cussedness and neglect; now as the only way out of the maze, I shall, as you will see, charge them all up against the machines. There seems to be no other way out. I, therefore, send you a table of performances since the beginning. The last six years running has been on gas oil, with an occasional tank of Texas oil; the first nine years on naphtha. A salient feature is, that the machine is carbonizing more oil per hour under fire, and making more gas per hour than it did in the start, also that it has performed a little better on gas oil than on naphtha, but that is possibly due to improved handling. Under the head of naphtha gas made is included the gas made in purging out and the begin-

ning and end of runs, the analysis will show more correctly the proportion of oil and water gas."

6912 Is that correct?

A. Yes, sir, that is correct?

Q. That appears in the exhibit?

A. Yes.

Mr. MATHEWSON: All that appears, and is going to be printed.

Q. I ask if under the heading of "The Danbury process of gas-making," the following appears:

"In fact the operation as a process was being continually made over, to suit the different oils, and as shown by the results, that a fifteen-year-old machine is doing superior work with an inferior and cheaper quality of oil than at the outset. For instance, the first year's running on naphtha took a gallon of material for 95.69 cubic feet of average, 34.38 candle gas; while the year ending May 31, 1905, required a gallon of gas oil (gone from stack) for 106.86 cubic feet of average 34.8 gas. It may as well be stated at this point how the photometry of this gas has been determined and entered in the account."

Thereafter follows the quotation in regard to photometry that I read.

A. Quite correct, sir.

Q. You also made certain comparisons with New York and Danbury, and I call your attention to that part of the communication headed: "Results from the use of the Danbury process" from the setting of nine upright retorts, being schedule of such results for various years. I take it that the total number of hours in a year is 8,760, is it not?

A. I think so.

Q. I have here the year 1890, under "Hours Run," total 2,969.7 hours.

A. That seems to be the statement, yes.

Q. 1891, 2,352.

A. Yes, those were complete years, two half years in each case; that is right.

6913 Q. 1892, 2,962.8?

A. Right.

Q. 1893-4.

A. It is 1893-4; it is for the two years in each case.

Q. But for twelve months?

A. 2,301.2.

Q. 1894-5?

A. 2,824.6.

Q. 1895-6?

A. 2,909.7.

Q. 1896-7?

A. 2,533.9.

Q. 1897-8?

A. 2,426.6.

Q. 1898-9?

A. 2,279.7.
Q. 1889-90?
A. 2,581.1.
Q. 1900-1?
A. 2,635.4.
Q. 1901-2?
A. 2,961.5.
Q. 1902-3?
A. 3,098.7.
Q. 1903-4?
A. 3,351.8.
Q. 1904-5, ending June 1?
A. 3,501; those are right.

Mr. MATHEWSON: Mr. Master, it will take just a moment, but you will recollect that during that summer, during the hot weather, quite a number of papers were put in signed by Oakey Hall, Sweeney and others, and the question was raised as to whether the signatures had been identified; they were considered sufficiently so for admission. Mr. Clark Bell, who drew many of the papers, was then out of town and *b*e could not get him. Now, counsel for the other side have consented that I call Mr. Bell for a moment and have him testify as to the signatures.

Mr. BURR: I have consented to allow Mr. Bell to be called now, because he is an old gentleman and I am informed that Mr. Mathewson will only take a little time with the redirect-examination of Dr. Humphreys.

(In order not to break the sequence of Dr. Humphreys' ex-
6914 amination, the testimony of Mr. Bell, although taken at this point, is printed at another part of the record, after the close of the examination of Dr. Humphreys).

(After Mr. Bell's testimony a recess was taken to 2.30 o'clock P. M.)

After Recess.

Redirect-examination by Mr. MATHEWSON:

Q. You say that you became connected with the U. G. I. Company of Philadelphia in 1885, Doctor?
A. Yes.
Q. How long had Mr. Edgerton then been connected with the company?
A. About three years, I think.
Q. And what were you employed to do?
A. I was employed specifically to organize the engineering and operating departments.
Q. Did Mr. Edgerton have anything to do with those after you came there?
A. Not that I know of, except in the case of Pensacola, where we endeavored to use his services in a definite direction.
Q. It has been suggested that he was paid a royalty during the

time, until his contract expired, that is until 1891, and some salary. Is it your information that he did receive some compensation?

A. Yes. He no doubt received some compensation for the trial of his apparatus.

Q. While the U. G. I. Company were experimenting to see if the process proved good?

A. They had a number of different processes at that time, including the Lowe, the Edgerton, the Hamlin-Johnson, and I think the Pierson, and the question when I went into the employ of the company was what process would be finally adopted, and that was one of the problems put up to me to report upon, which I did report upon.

6915 Q. Were any of the Edgerton processes introduced or constructed or established by the U. G. I. Company after the results of the Pensacola experiments in relation to that process were known?

A. They were not. There never were any of the Edgerton processes put into use by the U. G. I. Company in their plants after the results at Pensacola were known.

Q. You said yesterday that if Mr. Edgerton had made suggestions as to laboratory work, you would have been inclined to accept them. Did you intend to make a distinction there?

A. I did. I consider Mr. Edgerton a very skillful man in the laboratory, but do not consider that he is a practical man.

Q. You were asked yesterday if you did not know that payment for the Welsbach process was made on Mr. Edgerton's order, or upon his recommendation. What is the fact in that regard?

A. The fact is, as I stated yesterday, I have always supposed it was made upon a very exhaustive investigation that was made under my direction, and that while my report was not finished it was upon such information as I was able to give them from my investigation that they decided to enter into this proposition, and that understanding I have confirmed by a communication with Mr. Bodine, who is the man who made the payment.

Q. The main offices of the U. G. I. have always been in Philadelphia, have they not, since you became connected with the company?

A. They have.

Q. Reference was made yesterday to a resolution or assumed resolution of the Philadelphia Council approving the Edgerton process and recommending it for Philadelphia. Did you ever hear of any such resolution before?

A. No, I have not.

6916 Q. Did the Council of Philadelphia have anything to do with the management of the Philadelphia Gas Works?

A. I cannot see what they had to do with the gas works. The gas works at that time were in the hands of the notorious gas trust, and they had charge of the works as trustees for the city.

Q. You refer to the Philadelphia gas trust?

A. The Philadelphia gas trust. It was a political municipal body.

Q. It was asked yesterday whether you could not get more candle power from a five-foot burner than from a two-foot burner, in testing

the candle power of this oil, all in connection with the candle power of 32.95 as shown in Mr. Edgerton's letter to Mr. Bradley. What is the fact in that regard, or have you anything you wish to say on the subject?

A. The facts are that as to the highest candle power to be developed from any gas by the selection of a burner depends upon the richness of that gas; if the gas is very, very rich, running up to 50 or 60 candle power, or even 40, you can get higher candle power by using a burner of less than five feet consumption per hour.

Q. What was the character or condition of the photometers that you found in use at the U. G. I. Company's office when you came in, in 1885, do you remember?

A. Very distinctly. Not at the office, but at the several works. I remember that in a number of cases the photometers were in such condition that no reliable result could be obtained from them, especially I remember that the Goodwin candle balances—I remember using the expression in describing them as I went back to the office that they would not weigh sugar correctly, the discs were generally dirty, and frequently the apparatus was out of alignment.

6917 Q. Have your views been modified in any way as to the impracticability of keeping the pressure between one inch and 2½ inches at one time at all points in New York City by any evidence that has been presented?

A. Not at all.

Q. You have been asked whether you had testified heretofore in various places. At whose request or invitation did you testify in Chicago?

A. The invitation of the city, as represented by the chairman of the committee on gas or oil or whatever it was—you have the title in the little blue book. The chairman of that committee, Mr. Young, I think it was, communicated with me. Gas, Oil and Electric Light is the name of the committee.

Q. At whose invitation did you testify before the Parliamentary Committee? At that of the gas companies or others?

A. No, at the invitation of the chairman of the committee.

Q. Who is that, do you remember?

A. I think his name was Lord Belfort, or Belport; I was also invited by a gentleman who is now known as Lord William Ramsey and also by Mr. Haldane, a brother of the present Minister of War.

Q. Referring to your Holyoke testimony, did you give any testimony there that was opposed to your present recommendation of the allowance to the consolidated gas company of an expenditure of 10.89 cents?

A. Not at all, in my opinion.

Q. Plus reserve fund and final renewal fund?

A. No.

Q. You were asked some questions in reference to the Buffalo reports. Will you state the situation at Buffalo, and something further in reference to why that report is in that particular form?

A. When I took charge in Buffalo, the report form being
6918 used was in the form stated in the evidence this morning, and it has been simply allowed to go along in that way without

change, in spite of the fact that I do not consider it the best form. We have introduced just as little change in Buffalo as possible, even in the matter of printing blanks, as we are on the edge of default on our bonds all the time, due to the tremendous competition with 30 cent natural gas; in fact that is what I was employed by the owners of the company for; to save them from default. It does not alter the facts at all as to the ultimate knowledge and sense.

Q. Nor as to your opinion regarding the proper form to be used?

A. Not the slightest.

Q. Of course, the figures you gave are distribution figures, exclusive of taxes and general management and others?

A. Yes.

Q. In the Buffalo returns there are certain things included for distribution and certain things included for, I think the term is collection, then there is general and executive; more generally in the returns of companies all three of these are included under one heading of distribution, but at Buffalo they distinguish them.

Q. As to dividends on the Massachusetts companies respecting which you were asked, of course, the dividends apply as you understand them, only to the stock issued, the term dividends?

A. That is my recollection.

Mr. BURR: I suggest that Mr. Mathewson ask the direct question and let the witness answer.

Mr. MATHEWSON: I will, but it will take a little more time. I supposed there was no particular object in doing so.

6919 Q. Does the statement of dividends paid or stock issued and interest paid on notes or bonds issued in any way conflict with the tables which you have put in here showing earnings upon actual assets?

A. Not at all.

Mr. BURR: That is a conclusion which the Master will arrive at, may be, and may be not.

Q. Referring to Complainant's Exhibit 380, are you able to state what the profit per cent. on the paper capital employed would be, and what the profit per thousand of sales would be, provided none of the special amounts, debits to profit and loss, had been included in the cost of gas, but only the ordinary inclusions?

A. I will figure it for you.

Q. No matter, I thought you had it figured.

A. Well, I have it here as 11.78 per cent. 34 cents per thousand. I was going to go over it, but it was just figured by me in pencil, it was not part of the original table.

Q. Your attention was called this morning to Haverhill, which has a paper capital of 63 cents per thousand feet, and your attention was called to the fact that the Commission endeavored in order to reduce the price of gas to 80 cents on the theory that a part of the plant had been built up from contribution by consumers of gas beyond the dividends paid. Is it your information that 80 cents prevails at Haverhill, or ever has prevailed?

A. No.

Q. What is the situation?

A. My recollection is they are charging $1.10 with ten cents discount.

Q. What is your information as to the proceedings there?

A. The matter as I say was carried into Court. I don't know definitely how it stands at present, but the impression in my
6920 mind is that the matter has not been pressed for a number of years by the commission.

Q. Do you remember when this came up first?

A. A great many years ago.

Q. And there has been no decision so far as you know?

A. There has been no decision so far as I know, and the matter is in abeyance entirely.

Q. Will you look at the 21st annual report of the Board of Gas and Electric Light Commissioners and see whether in that volume to which your attention has been called to other matters, Haverhill does not appear to be charging $1.10 now.

A. Yes, it is stated on page 106 that the price is $1.10, discount ten cents per thousand feet if paid on or before the 10th; average price $1.01, and the average price the year before, $1.01.

Mr. BURR: Well, he has stated that matter is in the court.

Mr. MATHEWSON: I would like to know how long ago the order or decision was made, if you have the report to which you referred.

Mr. BURR: I gave it to the stenographer.

Mr. MATHEWSON: I suppose it will be conceded that the order to which you refer in Haverhill appears in the report of the Massachusetts Gas Commissioners for the year ending June 30, 1900?

Mr. BURR: Yes.

Q. As to the cases in which a rate was fixed where the dividend was six per cent. or less, are these the cases, Dr. Humphreys, to which you referred yesterday and in which you said the Gas Commission of Massachusetts made a special statement in each case as to the reason why?

A. That is right.

6921 Q. And those all appear then in the record, do they not?

A. Yes.

Q. You were asked this morning as to some result taking $2.24 as the capital of the five companies specified in Complainant's Exhibit 378?

A. Yes.

Q. Was that capital paper capital or actual assets?

A. Paper capital.

Q. How do the assets compare with the paper capital, more or less?

A. More.

Q. Now, the Boston Consolidated Company was organized within the last year or so, and do you remember what their capitalization per thousand is, according to the statute, as allowed by the statute?

A. About five dollars, I think.

Q. Do you know the percentage of coal and water gas manufactured in Massachusetts?

A. I know it in certain cases, I do not know it in detail in every case.

Q. You were asked regarding the amount charged for renewals by the Consolidated Gas Company, and you stated it was the difference between the 10.89c. and the repairs. Did you wish to be understood as questioning the propriety of that charge for renewals, or anything of that sort?

A. Certainly not.

Q. And did I understand you in that connection to withdraw your opinion that reserve fund and final renewal should be allowed beyond?

A. Certainly not.

Q. Now, referring to Exhibit 390, showing the increase in profits and increase of assets in the various Massachusetts companies therein specified does it not appear that the increases cover a considerable period of years in many cases?

A. Yes.

Q. And do you find anything in that as to sales? I under-
6922 stood Mr. Burr to refer to the amount of sales?

A. No, there was not anything on the table as to sales.

Q. You were asked as to how many companies you know carrying a reserve fund in the same form in which the Consolidated is now carrying its, that is, as part of a ten cents per thousand charge, and you named only two or three. Do you understand that the carrying of a reserve fund in some form is uncommon by industrial companies?

A. By no means; it is the general practice of nearly all manufacturing concerns.

Q. In reference to the computation for mains in Massachusetts, you assumed Mr. Marks' table for mains laid under macadam, you said in computing for these large but outside cities. Some tears seem to have been shed over that. What is the explanation?

A. The explanation is that I endeavored to find a figure that could not be found fault with, on the other side, at least, so I took the cost that is shown by the curve that runs up to No. 18 at the top.

Q. And what is the endorsement on that curve?

A. Cost per foot for streets with macadam tops outside the city proper, laid and surface restored.

Q. So the curve you took does not appear to be the prices by Mr. Marks for laying mains inside the city proper, does it?

A. I did not understand it so, and the prices developed from it would not indicate it.

Q. You are referring now to what exhibit?

A. City's Exhibit No. 50. It says, page 1404-N, on top of it.

Q. You were asked this morning to make some computations of the same character that Dr. Marks had originally made for a previous year showing assets per thousand of capacity, assuming
6923 the capacity to be as it appears in the Massachusetts Report to the Gas Commissioners.

A. Yes, sir.

Q. And for example, Worcester was stated at a total of 4,200,000 cubic feet, is that correct?

A. That is right, yes, sir.

Q. Has Worcester the capacity to put out 4,200,000 cubic feet?

A. It has not.

Q. What is their capacity to-day?

A. Their balance capacity is three million. This simply refers to generating capacity, distinguishing between coal gas and water gas. It is not the capacity of the works as a whole, no matter what the returns may say.

Q. And from your knowledge as a gas engineer, of the way such reports are made, would you consider it safe to take a statement of that kind as the balance capacity of work in making any computation on which you are to depend?

A. Not unless it was stated specifically. These returns are interpreted in different ways by different men, and I have no doubt that some of those returns appear as the Worcester report appears, and others will appear as the balance capacity, but generally I think you will find the companies put in their generating capacity, especially if there is water gas and coal gas.

Q. And not their capacity in reference to other apparatus necessarily?

A. No, sir.

Q. Now, as a matter of fact, is it not necessary to have a reserve capacity as a rule beyond the real capacity of a plant, so that you cannot count on an output up to the full capacity as a working entity?

A. Certainly, you must have a reserve to take care of sudden fluctuations and accidents; where the capacity is reduced, retorts thrown out of order, a generator has to be repaired, purifier lid has to be fixed, or what not.

6924 Q. Would you think therefore that in such computation as Dr. Marks has made, taking the capacity as found stated in the report referred to would be a safe one?

A. I should say it would be valueless.

Recross-examination by Mr. BURR:

Q. What do you mean by the "city proper" in reference to the mains and the figures appearing on the map or chart by Dr. Marks?

A. It was not I that meant it. It was Dr. Marks, but I suppose what he meant was when you get beyond the city conditions and get out into the suburbs of a town. I thought he was taking a general condition.

Q. The city proper as a matter of fact in the City of New York would mean below 59th Street, wouldn't it?

A. I shouldn't think so any more there than anywhere else.

Q. So far as the laying of mains is concerned I mean?

A. No, sir. It is just the same above as below.

Q. I said so far as the laying of mains was concerned?

A. So far as the laying of mains is concerned it is the same. That is a crowded district up there and it is very difficult to lay mains in that district.

Q. You don't mean to say that the officers of your company have

grown careless in making up their report because of this competition which you say exists in Buffalo?

A. Oh, no, not at all. We are very careful. We have got all the facts up there to a very fine point.

Q. By reason of the use of these blanks you refer to?

A. Yes, and the use of many other things. We watch those things carefully.

Q. I say they have not grown careless because of using those blanks?

A. No.

6925 Q. Now, as to what you mean by heavy and light oil; what do you understand is the difference?

A. That is rather a loose way of expressing myself. I was referring to say a 28 degree or even lower oil as compared with a 38 degree up to 40, somewhere around there.

Q. Any refined oil consists of hydrogen and carbon in combination, does it not?

A. Yes; somewhat.

Q. Is not all the carbon in a heavy gas oil in combination with hydrogen to form hydro-carbons?

A. We presume it is, although they speak of free carbon. The fact is though that in the heavy oils when you come to distill them you get compounds which are very prompt to let go their carbon and as you distill you get finally free carbon in the form of coke.

Q. A heavy gas oil has been distilled before you get it, hasn't it?

A. Yes.

Q. Isn't a heavy gas oil in which there is more carbon in combination with hydrogen than in a light oil?

A. More carbon?

Q. The carbon and hydrogen being found in any refined oil your per cent. between cannel coal and a-thracite coal, both of which contain a large percentage of uncombined carbon, has no connection with an oil in which oil the carbon has combined; that is, comparing two unlike materials?

A. It is not a good illustration. I simply used it because I wanted to meet the very inaccurate statement made by Mr. Edgerton that an oil was necessarily better for gas making because it had more carbon in it, which is not true.

Recross-examination by Mr. KIRBY:

6926 Q. Don't you remember then when you were in New Orleans in 1885 and 1886 that a committee of not only the gas trustees of this Philadelphia company, of which you have spoken, but also of the Council of the City of Philadelphia, including the Mayor of the city, visited New Orleans for the purpose of examining the gas companies there and did make such examination?

A. I have no recollection. I didn't even remember I was in New Orleans in 1885. Evidently you have something which makes you think I was, otherwise I should say I was not. I might have been there.

Q. Weren't you there with a Mr. Adams?

A. I was in New Orleans with a Mr. Adams, yes, and it might have been 1885.

Q. Don't you remember at that time this joint committee from the Gas Trustees and from the Council, which included the Mayor of Philadelphia, visiting New Orleans and examining the works?

A. I have absolutely no recollection of it.

Q. You, of course, would not deny that such a committee did make such a visit for that purpose?

A. Certainly not.

Q. Are you prepared to state that over and above the amount which Mr. Edgerton obtained for royalties while he was in the employ of the U. G. I. that he did not receive a salary as chemist and engineer of that company, which at no time was less than $9,000 a year?

A. I am not prepared to state that it is not true, but I do not believe it, and I have very good reasons for thinking it was very considerably less than that. I know the arrangements made with Mr. Edgerton as I have stated were with regard to his patent and that they wanted to keep the patents under their control until they should determine what was the best patent to develop, and that determination rested upon my report.

6927 Q. Speaking of Mr. Edgerton's patents and processes, I call your attention to an illustration set down in the book issued by the United Gas Improvement Company, appearing on page 35, the year of which does not seem to be given, but on page 35 thereof, and I ask you if you will tell me what that picture illustrates—a man leaning over an apparatus with something in his hand?

A. That looks to me like a man making an ordinary test for sulphuretted hydrogen in a purifier box.

Q. Is that not a man making a test of the mixture in the water gas apparatus to ascertain whether or not there is an excess of carbon or of tar, proportioning the amount of oil?

A. Absolutely no, and I can prove it. There is a purifier house, with a recessed window to get light through without having any flame in the room, and there is the clamp coming down to clamp in underneath the water seal, and there is the edge of the water seal and there is the purifying box coming down with a square into the water seal, and you never saw one of those plants made in that form, the water gas plant. It is unquestionably the purifier box.

Q. Be that as it may, and failing to find herein an illustration which will show that which I now ask you of, is it not a fact that the method of ascertaining the proper proportion of oil in the water gas apparatus proper is not one which was devised by Mr. Edgerton and one which is in use today.

A. I am not sure whether it was devised by Mr. Edgerton, or not. I dare say it was. Mr. Edgerton is an extremely ingenious man about such things. It was used for many years in New York, and I have seen it employed there, and the method of allowing the

gas to impinge upon a polished piece of steel like a trowel.
6928 Whether Mr. Edgerton was the inventor or suggestor of that scheme I don't know. As to its reliability I have very great question. It is just a good rough test by the color.

Q. And it is used today by the Consolidated Company, is it not?

A. I am not sure. I should not think so, but it might be.

I would like to put one thing on the record, if I may, Mr. Mathewson, and if I have the Master's permission. I have testified with regard to Mr. Edgerton in this matter, and myself, with very great reluctance. I have never done anything of the kind before, and it was only that I felt necessary on account of the claims he made that I so testified, and I am very sorry I had to do it.

The testimony of Clark Bell is inserted in the record at this point as per previous note .

CLARK BELL, being called as a witness on behalf of the complainant, being duly sworn, testified as follows:

Direct examination by Mr. MATHEWSON:

Q. Are you an attorney and counsellor-at-law?

A. Yes.

Q. Of the City of New York?

A. I am.

Q. How long have you been such?

A. I came here in 1864, since which I have resided here.

Q. And were you attorney for the Anthracite Gas Lighting & Heating Company?

A. Yes.

Q. And subsequently the Union Gas Light Company?

A. Yes.

Q. Have you examined certain original exhibits in this case?

A. They have been presented to me by Mr. Benedict this morning.

Mr. MATHEWSON: I have here a statement which has been
6929 prepared in order to shorten the testimony of Mr. Bell, and by consent I will read it and hand it in to be printed in the record.

(The statement alluded to by Mr. Mathewson is as follows):

The WITNESS: In summary I will say that I have examined the exhibits hereinafter mentioned, and make the following statement in reference thereto:

120. The affidavit of publication is in my handwriting. I know after refreshing my recollection from this paper, that the notice—a copy of which is contained in the exhibit—was published.

201. The signatures of Doolittle, Redfield and Osborn are genuine signatures. This paper was executed in my presence.

103. I recognize this paper. I examined it as counsel about the year 1871 as one of the warrants of title.

109. This instrument is in my handwriting. It was signed by William H. Appleton and by S. D. Law in my presence. The witnesses, George S. Appleton, and John Sickels, signed their names

in my presence. I know that at that time William H. Appleton was President of the Anthracite Gas Lighting & Heating Company of New York, and I know that S. D. Law was secretary of the Company and that the instrument was executed in pursuance of a Resolution of the Board of Directors of the said Company.

179. (Also being No. 180.) I recognize the signatures of Genet, Connolly, Fields, Tweed, Wilbour, Peter B. Sweeney, Hall and Hilton. This paper passed through my hands over thirty years ago. I also recognize the signature of James M. Sweeney.

195. This paper passed through my hands more than
6930 thirty years ago. It was prepared in my office, part of the body of it is in the handwriting of my then law partner, Judge Edward I. Bartlett. It was executed about the time of its date.

200. I recognize the signatures of Redfield, Doolittle, Graham, Osborn and Porter. The signatures are genuine. The paper was executed in my presence and in part prepared by me. M. A. Potter, the Notary, was Managing Clerk in my office at the date of this instrument.

215. I recognize the signatures of W. Bayard Cutting, M. Bayard Brown, R. Fulton Cutting, William W. Moir, Oliver P. C. Billings, John Sickels and George Howes.

115. This instrument was delivered to me by Charles Edgar Appleby, as Receiver, more than thirty years ago.

145. I know that John J. Bradley customarily acted as attorney in fact for James M. Sweeney. I dealt with him as attorney in fact for Sweeney.

156. Parts of this instrument are in my handwriting. It passed through my hands over thirty years ago.

151. Parts of this instrument are in my handwriting. It passed through my hands over thirty years ago.

188. I know that at the date of this instrument Robert M. C. Graham was President of the Union Gas Light Company and John Sickels was Secretary of the same Company. I was attorney for that Company. I know that the grantors—Foster, Townsend, Turney, Bacon, Appleby, Porter and Young—constituted and acted as an Executive Committee under Chapter 944 of the Laws of 1871. I superintended the execution of this instrument and recognize the signatures of Appleby and Porter. I saw President Graham
6931 and the Secretary Sickels sign the instrument. That was over thirty years ago.

196. Parts of this instrument are in the handwriting of Judge Bartlett, who was my law partner at that time. I saw this instrument over thirty years ago.

161. I recognize the signature of A. Oakey Hall. It is his signature.

142. The alteration striking out the word "William" and in writing the word "Henry" was made by me before execution of this instrument.

144. The words "Hugh Smith" were struck out by me in three

places and the words "James M. Sweeney" were written in their places by me before execution and with the authority of the grantor.

165. The William Johnston who signed this instrument was reputed by his associates to be the same person mentioned in Chapter 944 of the Laws of 1871, as William Johnson. The alterations in the fifth and fifteenth line of that instrument in purple ink, were made before execution.

Cross-examination by Mr. BURR:

Q. It was prepared by Mr. Benedict?

A. It was prepared by Mr. Benedict and submitted to me, and I corrected some parts of it.

Q. Mr. Benedict of Sherman & Sterling?

A. Yes, it was stated to me that it would be shortened in that way. I have examined the exhibits.

Q. In here you purport, according to this statement, to recognize the signatures of various parties whose signatures are attached or said to be attached to the papers offered in evidence here?

A. Yes.

Q. The papers are not here?

A. Yes, I think the papers are here.

6932 Q. When did you see Bill Tweed last?

A. Along in those days.

Q. When was that?

A. About 1872.

Q. Do you mean to say now that you could recognize the handwriting of William M. Tweed?

A. Why, certainly.

Q. Did you see him write often?

A. I think so, a good many times. He was a well-known character in those days.

Q. Did you have business with him?

A. Certainly.

Q. Were you at that time the President of the Society of Medical Jurisprudence?

A. I think I was elected in 1871.

Q. It was not on that business that you saw Mr. Tweed, was it?

A. No.

Q. Your office was then at 47 Broadway?

A. My recollection is that it was about 20 Nassau Street, but I would not be sure. I think it was 20 Nassau Street.

Q. Don't you recall being on Broadway below the National Express office?

A. You are referring to 1872?

Q. I think so.

A. I think I was at 120 Broadway; first I was at 20 Nassau Street and then I went to 120 Broadway. That is my general recollection; you may correct *wrong* if I am wrong. It is a good many years ago.

Q. Did you have anything to do with the transfer of these various franchises outside of the deed which you and your wife executed?

A. I was the counsel for the company.

Q. For what company?

A. The Anthracite Gas Light and Heating Company. I conducted the negotiations and had the papers executed, transferring to the Union—I think—yes, the Union, subsequeently to the
6933 Knickerbocker; and I was counsel for all of those companies until the final sale. The papers passed through my hands as counsel. My wife had nothing to do with it.

Q. Do you mean to say that you had charge of the transfer of the franchise rights from Peter B. Sweeny and Tweed and all those other men as assignees?

A. Yes, my clients.

Q. To your clients?

A. Yes, sir.

Q. So that you saw them sign the papers yourself?

A. Many of them I did, but every one of them had to pass me as counsel before I would accept them.

Q. You have read this statement correctly, have you?

A. I did not prepare that. First I examined the papers and then I modified his statement. It is not drawn exactly as I would have drawn it, and it was done to shorten it, as I understand. If you will refer to any one you will see.

Q. Do you recognize the signature of William H. Appleton?

A. Yes.

Q. Who was he?

A. He was the president of one of the companies.

Q. And S. D. Law?

A. S. D. Law was the secretary.

Q. Did you know Connolly, the treasurer?

A. Certainly.

Q. You say that as if you were an intimate friend?

A. Well, I was before his misfortune came upon him. Dick Connolly was as good a man as there ever was in this town, and a very good fellow, by the way, and from an elegant family.

Q. Now, you have made a statement here with regard to the affidavit of service. What calls that to your recollection?

A. If you will show me the exhibit; it is numbered there, isn't it?

Q. You also recognize the signature of A. Oakey Hall?

A. Yes.

6934 Q. Still another particular friend?

A. He was, indeed; I was very intimate with him years ago. He was Mayor of this city, if you remember; a prominent man here.

Q. Who was your law partner at that time?

A. Edward T. Bartlett, now of the Court of Appeals.

Q. Was he also the attorney?

A. I see his handwriting in some of these papers, where I had him to assist me in the work.

Q. I notice in this Complainant's Exhibit 20, marked in the corner is 89½ B. & C. Does that refer to you, that B?

A. I do not know. I recognize this paper. It is a general release. The signature is that of my managing clerk.

Q. Mr. Potter?

A. M. A. Potter was my managing clerk. The body of that is in his handwriting, and the signatures are those of men that I know, Osborne, Doolittle, and Redfield. I recognize the handwriting and they signed that in my presence.

Q. I will call your attention to the affidavit of publication, Complainant's Exhibit 120, purporting to be proofs of publication in compliance with the State grant. Do you recognize that paper?

A. Yes, I do.

Q. And in whose handwriting is that?

A. I do not know. The first page I do not recognize. The affidavit is in my handwriting; William Foster, Jr's. signature.

Q. Do you know that he swore to it?

A. He signed it in my presence.

Q. Is this his signature?

A. Yes, and he swore to it. I will not say I was present when he swore to it, but I have no doubt I was. That is his handwriting and mine.

Q. Do you know the notary, James Klein, notary public,
6935 King's County? Do you recognize his signature?

A. I cannot swear to that. I do not remember that I know him. This transaction was a great many years ago. I do not know that I knew Mr. Klein at that time. What is the date?

Q. May 20, 1878.

A. I do not recognize it now, and I do not remember James Klein; very likely I knew him, but I do not remember now.

Q. You do not know when William Foster swore to this affidavit?

A. Oh, yes, I do.

Q. You say you were not present?

A. I did not say I was not. I say I probably was. There is no doubt it was sworn to about the date that it bears date.

Q. And that is his signature?

A. Yes.

Mr. MATHEWSON: Mr. Forstall, will you take the stand.

Mr. BURR: I notice Mr. Mathewson has called Mr. Forstall although he finished with him on his rebuttal and gave all the testimony that was necessary. It is rather a surprise to call Mr. Forstall at this hour for something else, and I object to it. Our time has been limited; we have been held down to a very narrow and limited margin of time, and to call Mr. Forstal again——

The MASTER: I cannot pass on the objection until I see what he is going to ask him. Mr. Mathewson stated last night he would have fifteen minutes of odds and ends today. This may be an odd or an end.

Mr. MATHEWSON: My examination won't exceed five minutes with this witness, and all the rest I have won't take more than five minutes. This rose from something that came up this morning. Fortunately, I was able to answer it.

6936 Mr. BURR: Then this was not one of the odds and ends you referred to yesterday?

Mr. MATHEWSON: No, but I think we can include it in the same time.

ALFRED E. FORSTALL recalled on behalf of complainant in rebuttal.

Direct-examination by Mr. MATHEWSON:

Q. You heard the testimony this morning and the suggestion of counsel in regard to the Danbury tests, that while the test was 32.95 or such a matter with a two-foot burner, yet if a test of such gas as that were made with a large burner it might or would show 44 candle power. As a matter of fact, have you recently made a test in Danbury with a larger burner, say a No. 6 Bray?

A. I have.

Mr. PAGE: This is objected to. I don't know really what relevancy and materiality it has in the case. The statement he is called upon to testify regarding is certainly something brought out by their own witnesses. If they are going to rebut their own testimony we will keep on for some time yet.

Mr. MATHEWSON: It was a statement in Mr. Edgerton's letters to Mr. Bradley upon which an interpretation had been placed by you.

Mr. PAGE: And it was brought out originally by your own cross-examination. I think you asked the question.

The MASTER: Has anbody found yet the page at which this Danbury testimony first came into the case? Nobody had a memorandum of it yesterday, and I was not able to find it.

6937 Mr. MATHEWSON: You will remember that after examining Dr. Humphreys, Mr. Kirby threw down the paper as of no value because the tests there, he said, were made with a two-foot burner or something like that, and the suggestion if a larger one had been used 44 candles would have been found.

The MASTER: It is not a question of what the point is. It is a question whether this is proper rebuttal or not. I want to see this matter in which this Danbury correspondence first came up.

Mr. MATHEWSON: I don't think there is any dispute, Mr. Master, about that.

The MASTER: There wasn't any dispute about it yesterday, and I acted accordingly, but I would like, for my own satisfaction, to see it.

Mr. MATHEWSON: If you have a copy of the cross-examination of Mr. Edgerton I think I can find it here in short order.

Mr. PAGE: Mr. Mathewson, as I remember, asked him if he had not written some letter.

Mr. MATHEWSON: To somebody in Maryland, and he said, no, he had not, but he had sent certain papers to Mr. Bradley, who was then ill. It was a voluntary statement. I did not ask him about it at all, and even though I did, I think it would be competent to use papers that he was the author of to rebutt his theories.

The MASTER: Well, I seem to be unable to find it here, now, so I will overrule the objection. I don't know whether it is proper or not, and I cannot find the reference. An exception may be noted. That will serve the interests of both sides.

6938 Mr. MATHEWSON: Very good, I will take it in that way.

Q. What burners did you use in those tests at Danbury, and have you a statement showing the results of the tests?

A. I used the number 6 low pressure Bray Union jet burner to obtain the candle power, with a consumption at the rate of five cubic feet per hour. Then for comparison I used three burners that were obtained from the office of the gas company in Danbury, such as they give out, and all being those that they give out to their customers. One of these was a lava tip batwing burner, unchecked, without any name or mark on it; another was a Stewart Special Union jet, marked H, which was checked; the third was a No. 3 Bray Regulator Union jet, which had no check, but with wire gauze in the base and muslin just below the tip, and I have a table showing the results of those tests.

Q. Is this it?

A. It is. The results are as follows:

TESTS OF CANDLE POWER OF DANBURY GAS.

Made Jan. 11th, 1907.

No. 6 Low Pressure Bray Union Jet Burner, with a consumption at the rate of 5 cu. ft. per hour. The flame was just on the point of smoking and did smoke with the slightest draft. While the flame in this condition gave the greatest efficiency, it was not a flame that could be used commercially.

1st test	3:25 P. M.	36.6 candles.
2nd test	5:45 P. M.	34.5 candles.

Several other tests were made with the same burner, but were not considered because the candles did not burn 40 grains within the proper time limits.

6939 TESTS OF BURNERS OBTAINED FROM THE OFFICE OF THE GAS CO.

Name of burner.	Rate of consumption cu. ft. per hour.	Candle power of flame.	Candle power for — 1 ft.	5 ft.
Lava Tip Batswing Burner Unchecked. No name nor mark	1.96	12.48	6.37	31.85
	2.21	14.52	6.57	32.85
Steward Special Union Jet H. Checked	2.6	16.69	6.42	32.10
No. 3 Bray Regulator Union Jet. No check, but with wire gauze in the base and muslin just below the tip.	3.95	28.07	7.11	35.55

These results are all uncorrected for temperature and pressure. The temperature was from 68 degrees to 70 degrees, and the barometer 29.5 inches.

Cross-examination by Mr. KIRBY:

Q. You have made no test with Danbury gas which, with the first burner set down in this schedule, lava tip batwing burner, unchecked, would have produced a candle power or flame of 14, have you?

A. No, sir. I came pretty close to it. On the second test, as put down in that table.

Q. But in that you showed 2.21 feet of gas, as against 1.96?

A. Yes.

Q. Are you aware that at Danbury during the time of this test a new apparatus had just been installed and had not as yet got down to what you would call proper working order?

6940 A. I had no knowledge—I have no knowledge of conditions at the Danbury works.

Q. Have you ever made any tests with your third kind of burner, No. 3 Bray Regulator Union jet, which, with the number of cubic feet burned, would give a candle power of 33?

A. No.

Q. Are you prepared to state what the candle power for five feet would be if using your third burner and burning 3¼ feet you got a candle power of 33?

A. I am not prepared to state exactly, but I tried to get that burner burning the quantity of gas at which it seemed to me to give the best flame, and then took the test at that and I think that if I ran it up to 33 candles it would have shown lower than it did under this test with that gas.

Q. Are you not aware that the gas as tested by you at this time was below the standard required at Danbury?

A. I am not. I have information that it was a little higher than it had been before.

Q. What do you mean by before?

A. Well, a week before.

Q. All companies, I presume, fall below standard at times, do they not?

A. No, I won't say that.

Q. I call your attention for instance to Fall River, where it says candle power, number of inspections made, 52; candle power averaged 20.09, highest 24.01; lowest, 18.9. That shows a fluctuation of 5.3 candle power? Does it not?

A. It shows a fluctuation, but doesn't show they fall below the standard.

WALTER R. ADDICKS, recalled in rebuttal, testified as follows:

By Mr. MATHEWSON:

Q. Testimony has been inserted by the defendant in reference to charge for gas at Syracuse, seventy-five cents, and various
6941 other cities in New England. Have you prepared a schedule showing the price charged in each city of this State?

Mr. BURR: I object to this, I do not think that is proper at this time. To recall Mr. Addicks and present a lot of charts and figures on them that we know nothing about.

Mr. MATHEWSON: It is not a lot of charts.

Mr. BURR: Or give a lot of testimony at this time when our understanding was that he had finished with them in rebuttal the other day, and we have all acted upon that assumption.

The MASTER: I will allow it.

Mr. BURR: I except.

Q. Is that it?

A. Yes, sir.

Q. Does this show, in accordance with the lines at the top 50 cents, one dollar, $1.50, $2.00, and $2.50?

A. It does.

Q. The unbroken lines represent the cost per thousand feet, up to $2.50?

A. Yes.

Mr. PAGE: Was this not produced at the hearing before the Commission?

The WITNESS: This is not the same.

Mr. PAGE: I think it is the same thing.

Q. What do the broken lines indicate?

A. They indicate the price of gas for fuel.

Mr. PAGE: What is this supposed to rebut?

Mr. MATHEWSON: Testimony that was put in affecting prices at Lynn, Boston, Syracuse, and one thing and another.

Mr. BURR: I object to it on that statement.

6942 Mr. MATHEWSON: Also from Brown's directory, various information.

Mr. BURR: One moment until I get a ruling on my objection. This purports to be a statement regarding cities in the state of New York?

Mr. MATHEWSON: Yes, that is to say, outside of Greater New York, and outside of the Westchester Lighting Company, of which the Consolida-ed Gas Company owns the stock.

Mr. BURR: That is for the year 1906, and have no relation to conditions existing in Massachusetts that have been referred to.

Mr. MATHEWSON: Haven't you quoted the -ports for the year 1906—a dozen of them?

The MASTER: It would not be proper rebuttal of the testimony given in regard to these Massachusetts cities.

The WITNESS: You will see that that 1906 refers to Brown's Directory of 1906.

The MASTER: Are these alike, these two?

The WITNESS: Exactly.

Mr. BURR: This is a long chart containing a mass of figures, and we are to end this hearing within a couple of hours. I submit that it is unfair and improper, and I object to it.

The MASTER: The question is whether it is proper rebuttal or not; the other questions have no bearing at this time.

Mr. MATHEWSON: They introduced testimony showing that the price at some cities is so and so, and we introduce a chart of the

State of New York showing charges of other cities in the State of New York.

The MASTER: That is all right. I recall that Mr. Bemis
6943 or somebody else did bring in something about Syracuse and some other towns mentioned here. Of course, that evidence was received and allowed to go in, although it was very doubtful materially anyway; but we had that all out early in the case, about different conditions in different cities, and we concluded that we would let it in, and a lot of it went in, but evidently this table is not rebuttal in any sense, except as it refers to something referred to in the defense; and in reference to something shown here about the price of gas in Syracuse, you cannot come in here and rebut with the price of gas in Geneseo.

Mr. MATHEWSON: Let me ask this question, not necessarily to be answered. If upon their case they bring in the price of gas charged in certain cities as an argument against our charging a certain price here, and if they bring in Brown's Directory and statistics of Dr. Marks and others, must we be excluded unless we go to those same cities, or unless we bring in figures showing how in other cities near home the price is fixed according to authority?

The MASTER: I will hold that it is not rebuttal of anything put in on the defense.

Q. I will ask one or two more questions. These lines represent the gross charges, do they not, and there are in some instances deductions for prompt payment?

Mr. BURR: I object to that as incompetent, irrelevant and immaterial.

Mr. PAGE: This is being received under the ruling.

6944 A. There are some in which only the net charges are shown.

Q. And Syracuse appears at 95 cents, which Professor Bemis testified was the price fixed by the Commission. Was the candle power fixed in the same order of the Commission?

A. Not less than 18 candles.

Mr. MATHEWSON: I will ask to have this marked for identification, if the Master excludes it.

The MASTER: I exclude except as stated.

The chart referred to is marked for identification, Complainant's Exhibit 395.

Mr. MATHEWSON: I called attention this morning to the fact that in spite of the directions of their own counsel, as I understand it, we have been unable to get access to reports of the New York State Gas Commission, by which we might present evidence if we saw fit touching some points upon which certain reports were here produced by the Secretary of the Commission; and I do not know as it is essential to put in the correspondence to prove that fact. Perhaps counsel on the other side know it sufficiently, so that it is not necessary.

Mr. BURR: I have not the slightest idea myself to what you are alluding.

The MASTER: I recall it.

Mr. BURR: I mean as to the correspondence.

Mr. MATHEWSON: Correspondence between Dr. Humphreys representing the complainant and the Gas Commission by its secretary, in reference to examining the reports of various companies filed with the Commission regarding the charges for oil and one or two points respecting which Mr. Hazard testified, and produced here reports of some few companies.

6945 Mr. BURR: Do you claim that in any way changes the testimony of Mr. Hazard?

Mr. MATHEWSON: No, but we have had no opportunity to see these very reports in order to present anything that came from them. (Here Mr. Mathewson refers to page 5917 of the record and quotes therefrom).

We have been trying to see them, but have not been able to, and of course now we cannot see them, and I merely make this *settlement* in order to explain why they have not received attention.

Mr. BURR: You remember the testimony of Dr. Humphreys with regard to certain information which he got from the companies; he had no difficulty in getting all the information which he wanted, not only from superintendents but men higher up than superintendents.

Mr. MATHEWSON: We are talking about the Gas Com*imssion*.

Mr. BURR: I say, outside of the records of the Gas Commission the complainant could readily find the information which they so-rt.

Mr. PAGE: The attitude, as I found it, seems to be that Mr. Hazard having allowed me to look at this as a matter that was brought up before the commission, they have taken the ground, which I think is entirely un*ad*justifiable and told them so, that they were confidential communications from the gas company to them, and not public records.

I told them distinctly just what I had said here and I forced them to give me the copies of the papers, and I had quite a time over that.

6946 Mr. BURR: And those copies I understand are given to Mr. Mathewson?

Mr. MATHEWSON: That is all right. That is not what we are talking about. There are others in which Mr. Hazard admitted that four cents or more was paid for oil without specifying, of course, the quality of oil. I will simply say this: If they were confidential documents and their representatives appeared for them here, they being defendants in this case and represented by counsel here, it does seem to us a remarkable proposition that they should exclude us from an examination of the papers; but more than that, if they were confidential, why was this report from Buffalo, upon which Dr. Humphreys has been examined, delivered over to the experts for the other side?

Mr. BURR: That did not occur, and that is not the fact. We got that report from the city attorney of Buffalo.

The MASTER: Gentlemen, you have said enough on the record to make your point and I cannot do anything about it.

Mr. MATHEWSON: No, I do not think it is necessary to offer the letters. Mr. Page's statement is very fair about it, and he has acted in the utmost good faith about it, as I would know he would. Now, we have to do the best we can at this time. The question is raised as to the candle power up the State and as to the character of oil that was used, and I now read upon the record in this connection a quotation from the report of the Commission of Gas and Electricity which I have from Mr. Hazard secretary of the Commission as follows:

6947 Mr. BURR: What is this?

Mr. MATHEWSON: It is the current report, it is marked at the top: "To be released for Tuesday Morning Newspapers, January 29, 1907," and sent to us from the commission.

Mr. BURR: I object to it as incompetent, irrelevant and immaterial.

The MASTER: I do not think that is important, I do not think it is material, and I do not think it is competent. I suppose the report will come out in the fullness of time and you can cite from it on your brief as a public document.

Mr. MATHEWSON: Perhaps so, but I think if the Master thinks I am mistaken I shall take the chance and put it in.

The MASTER: All right, I think you are mistaken.

Mr. MATHEWSON: There is no doubt that that is a copy of the report? You do not question that?

Mr. BURR: I dont' know anything at all about it.

Mr. MATHEWSON: I will ask Mr. Addicks, then, I can prove it.

The MASTER: It comes on the paper of the company signed by the secretary, but, if that was to be released some days ago, why has it not appeared in the newspapers?

Mr. MATHEWSON: It has appeared, some days ago. You do not question that this is a copy of the report?

Mr. BURR: I do not doubt that that was written by Mr. Hazard, and that that paper purports to be the report of the Gas Commission about to be published, or is published.

Mr. MATHEWSON: It has been published.

6948 Q. Mr. Addicks, you are still on the stand; is this a copy of the report which was sent to you by the secretary of the Commission?

A. Yes, I sent and got such report with such memorandum on it. I had one of the others.

Q. And this is what you received from the secretary of the Commission?

A. I received that, yes.

Q. With this letter on the paper of the Commission?

A. With that attached to it, yes, sir.

Mr. MATHEWSON: I will now read into the evidence this extract.

Mr. BURR: One moment; that has been excluded.

Mr. PAGE: Yes, but taken under the ruling.

Mr. MATHEWSON: It has been excluded and it is being taken under the ruling. A great many things have been excluded, Mr. Burr, that you have put in.

"The report further shows that although gas for illuminating purposes has been supplied in this State since 1823, no regular or systematic inspection or examination has been made of the purity and illuminating value of the product supplied, except in the City of New York, until during the past year, when the Commission established a department for such purpose. Tests have already been made by order of the Commission in practically every section of the State. The result of these inspections showed that the candle power of the gas furnished was very low, and an order has been issued by the Commission, compelling all companies furnishing 15,000,000 or more cubic feet of gas annually to install an
6949 improved photometer for use in making frequent tests for candle power. Th-s Commission has also adopted a rule to report results of tests to the companies in question, and to order improvements where deficiencies are discovered."

Mr. MATHEWSON: Now, I think I have only one thing more. Mr. BURR, at page 3042 and 3044 of the testimony on behalf of the defendant, read certain extracts from the report of the committee of 1885, against my protest, as appears on the record.

Mr. BURR: This is the committee of which Mr. Thomas was chairman?

Mr. MATHEWSON: I think so. I merely, to conclude my case, and in order not to seem discourteous to Mr. Burr, read in evidence the following extract from the same report.

Mr. BURR: Why didn't you read it before? What does this rebut?

Mr. MATHEWSON: I did not have to before.

Mr. BURR: I think so.

Mr. MATHEWSON: Wait until I read it through and see.

Mr. BURR: No, it is a part of your main case.

Mr. MATHEWSON: No, you did not introduce the source from which it came. It had not been made competent until you offered the volumes, or part of it. I did not put it in until you had put it in evidence, statements and report of 1886.

Mr. BURR: I beg your pardon; you unintentionally misstate the facts. You offered the inventory of Mr. Rowland long before I made the original report.

Mr. MATHEWSON: No, I had the original report of Mr.
6950 Rowland from the records of the Gas Company, and not from any book, and I merely offered them as a convenience.

Mr. BURR: I object to it as incompetent, irrelevant and immaterial.

The MASTER: I will take it.

Mr. BURR: I except.

Mr. MATHEWSON (reading): "It is apparent that a pressure necessary to carry gas to consumers at distant parts of the line would be excessive for intermediate points. As a result the gas passes through the burner faster than is desirable for economical consumption, but does not in New York under the pressure used by the company cause the meter to register gas not passing through it. It does not appear that the companies can furnish a remedy for this. It is the duty of the consumer to graduate the flow, either by the use

of a governor or some regulation at the burner. Much then depends upon the care of the consumer and his fidelity to his own interests in the use of gas."

Mr. BURR: I object to that and ask to have it stricken out now on the ground that unless it is admitted by the complainants that the conditions as to mains and pressures were the same in 1885 as they were in 1905.

The MASTER: I will let it stand for what it is worth, and I will allow your extract to stand.

Mr. MATHEWSON: The complainant rests.

Mr. BURR: I have no questions to ask Mr. Addicks.

The MASTER: What is the next in order, gentlemen.

Mr. BURR: I desire to call Dr. Marks.

The MASTER: You mean in reply?

6951 Mr. BURR: Yes.

The MASTER: Nothing in this rebuttal calls for any reply, in my judgment. I do not think you are entitled to it. I may be wrong, if you can point out some specific matters.

Mr. BURR: For instance, take the testimony of Mr. Simpson with regard to the errors in City's Exhibit 91, I think it is. Did we explain those?

Mr. MATHEWSON: The schedules of Dr. Marks?

Mr. BURR: May we explain those errors and show how we arrived at the result of the number of miles of mains on the books of the company?

Mr. MATHEWSON: Did not Mr. Simpson explain that?

Mr. BURR: Can we not show by the production of testimony and exhibits that pipes are affected by water and by earth without any wandering electric currents, in the same manner as they are claimed to have been affected by electric currents?

The MASTER: No. I do not think there is any use in counsel spending any time, or for me to spend any time, in having any oral argument on any of the features of this case. I think after the draft report is filed probably all counsel will have enough criticism to pass upon it, as to which they would like to be heard, and as to which I would like to hear them, and that will give the best opportunity for oral argument and the most useful, and the argument can then be directed to a specific point.

Mr. BURR: I except to the ruling of the Master in excluding

6952 the introduction of sur-rebuttal testimony on behalf of the defendants.

I now move to dismiss the complaint of the complainant, if that is the situation, and we can offer no further evidence in sur-rebuttal, on the ground that they have failed in proving any confiscation or anything more than, assuming their own figures to be correct, a reduction in the profits which they formerly obtained, under the decision of the United States Court, in which we are. In the case of Covington & Lexington Turnpike Road against Sanford, decided at the October term, 1906, the Court held that:

"We could not say that the act was unconstitutional merely because the company could not earn more than 4 per cent. on its capital

stock; it cannot be said that a corporation is entitled as of right, and without reference to the interest of the public, to realize a given per cent. upon its capital stock."

I also move to dismiss upon all the grounds set out at the close of the complainant's case.

Mr. MATHEWSON: Your case was a case where the capital stock had been largely inflated beyond the assets.

Mr. BURR: I had not finished. Do you rule upon that now, Mr. Master?

The MASTER: No.

Mr. BURR: I move to strike out again the evidence regarding which motions were made at the close of the complainant's case, and I except to the rejection of the evidence offered by the defendant. I think that that closes our case. We rest.

Now, as to the next thing, the submission of findings of
6953 facts and conclusions of law. I do not understand that the practice is that the complainant will submit to you and serve upon us a copy of its proposed findings, and that thereafter we have time in which either to admit their proposed findings——

The MASTER: No, there is no obligation on anybody to submit any findings at all. It is merely a matter for my convenience, and if submitted there is no obligation on any party to serve on anybody else.

Mr. BURR: Now, as to the submission of briefs. Of course I need not tell you of the vast magnitude of this case and refer you to the voluminous exhibits that have been presented and have grown during the progress of the trial, but we submit that reasonable time should be allowed in which to present those briefs.

The MASTER: It is unnecessary to point out that I will need the briefs very badly.

Mr. PAGE: We have not got our record yet.

Mr. BURR: The record, I understand, will not be completed for a week or so, and that must be considered. Furthermore, the record itself has got to be corrected. It is full of inaccuracies regarding all of us, and should be corrected, and as Mr. Mathewson stated, the other day, in which I fully concur, no one can do that properly except the men who have been engaged in the trial of the action. So, in allowing time for the submission of briefs, I hope you will take those matters into consideration.

The MASTER: What time can counsel agree upon? That is the best way.

Mr. BURR: I would suggest 60 days.

The MASTER: The case will be decided before that, if I am well.

6954 Mr. BURR: We are all pretty well exhausted, physically.

The MASTER: I need briefs, of course, and the quicker I have the briefs, the much less labor it will be for me, and there are parts of this work that will be almost impossible for me without the assistance of counsel. I do not want to fix any time for counsel if you can, by any possibility, agree. You will remember that on the question of findings or draft report, or anything of that kind, I asked

counsel along in summer to get some of their junior associates at work on them. I understood that you have had two men working on them for months, Mr. Burr.

Mr. BURR: But I found it impossible to do so, because it resulted in a very bad result, because this record is changing from day to day, and even to-day the last thing that the complainants did was to offer this beautiful set of charts, which may require some additional investigation on our part.

The MASTER: But they were excluded.

Mr. MATHEWSON: Yes, they were excluded. There is no need for you to bother about them.

The MASTER: What do you think, Mr. Mathewson? You have the affirmative in this case?

Mr. MATHEWSON: I concur in all that Mr. Burr says to some extent, in reference both to the ability to correct the record and the ability to do solid, accurate work through subordinates. The first is utterly impossible, and as to the second, you can get some assistance by telling what you want and having it picked out; but
6955 difficulty is to read over and see what is there, rather than to remember it and tell them to find it. I do not believe that I could put in a complete brief such as I would like to, within any time at the disposal of the Master in the case. Will it meet the Master's view if we get a brief in by March 1st? That would give, say, a month, or do you think we ought to be more expeditious than that?

Mr. PAGE: That only gives us twenty-seven days.

Mr. MATHEWSON: I am not anxious to curtail the period here within which to submit briefs. If we had time enough I should be content to accept a much longer time.

Mr. PAGE: It will take us a week to correct the record, and get it all, will it not?

Mr. MATHEWSON: I am afraid so; it has been impossible to correct it as we have been going on here.

The MASTER: Do you gentlemen intend to print your briefs?

Mr. PAGE: Yes.

Mr. MATHEWSON: Yes, I think so, as a matter of convenience.

Mr. PAGE: Suppose we have forty days; that would give us time to get up our records and briefs, after the whole thing is completed. Will that be acceptable to you?

Mr. MATHEWSON: Yes, forty days will acceptable to me if I can get it. It seems to me the Master must feel, and I suppose the Court will feel, that we are prepared to do it just as rapidly as we can.

The MASTER: I think if you have forty days that ought to be abundant without any extension. That will give you a week to
6956 get the record corrected and about a month to make up your brief and then pretty nearly a week to get it through the press and have it proof-read, if you are going to have it printed. I should be disposed to think that forty days is sufficient, and I am inclined to fix that time with the understanding that I am going to get the brief then, without any delay.

Mr. PAGE: We do not exchange briefs, as I understand it?

The MASTER: No; there is no point in that, because you will have

an opportunity to be heard on the draft report, and any questions at issue can be threshed out then. I will fix a date approximately, the 14th of March; that is approximately forty days. Briefs to be submitted March 14th.

Testimony closed.

6957 UNITED STATES OF AMERICA,
Southern District of New York, ss:

I, John A. Shields, Clerk of the Circuit Court of the United States of America, for the Southern District of New York, in the Second Circuit, do hereby Certify that the foregoing (Vol. 9) pages, numbered from 6175 to 6956 inclusive, contain a true and complete transcript of the record and proceedings had in said Court, in the cause entitled Consolidated Gas Company, Complainant, Appellee, against Julius M. Mayer, as Attorney General, *et al.*, Defendants-Appellants, as the same remain of record and on file in my office (Vol. 9).

In Testimony Whereof, I have caused the seal of the said Court to be hereunto affixed, at the City of New York, in the Southern District of New York, in the Second Circuit, this 15th day of May, in the year of our Lord One Thousand Nine Hundred and eight and of the Independence of the said United States the One Hundred and thirty-second.

[Seal of U. S. Circuit Court, South. Dist. New York.]

JOHN A. SHIELDS, *Clerk.*

[Endorsed:] United States Circut Court of Appeals for the Second Circuit. —— —— *vs.* —— ——. Transcript of Record from the Circuit Court of the United States for the Southern District of New York.